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ABSTRACT

This study was designed to compare the utilization of instructional time of first grade classroom teachers with and without full-time teacher aides, to compare the academic performance of children in these two groups, and to examine the relationship between teacher and aide activity. A sub-purpose was the development of an observation instrument to provide a timed record of teacher behavior, and this was found to be valid and reliable. Five research questions were formulated and statistical hypotheses established to answer them. Ten teachers with aides and ten without were studied by trained observers for four 10-minute periods. Pupil achievement was measured by the Lee-Clark Reading Readiness Test at the end. No significant difference was found between the two groups of teachers in clerical activities, routine activities, total group instruction or differentiated instruction. The teachers with aides spent more time in clerical activities and total group instruction. There was no common pattern of aide activity and teacher activity. There was no evidence that the aides provided more instructional time leading to improved pupil performance, although it seemed that teachers with aides were somewhat more successful in improving the achievement of lower level pupils. (Author/MBM)

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A COMPARISON OF HOW FIRST GRADE CLASSROOM TEACHERS WITH AND WITHOUT FULL TIME TEACHER AIDES UTILIZE INSTRUCTIONAL TIME AND THE EFFECT OF AIDE UTILIZATION UPON ACADEMIC PERFORMANCE OF CHILDREN

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by
James Lee Miller

Dissertation submitted to the Faculty of the Graduate School
of the University of Maryland in partial fulfillment
of the requirements for the degree of
Doctor of Education
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CHAPTER I

INTRODUCTION

The view that children vary in many respects is widely accepted. Regardless of the causative factors, educators agree that children enter school with different physical, mental and emotional capabilities. Otto and Sanders state, "Much time and effort in educational research and much space in professional literature during the past sixty or more years have been devoted to the study of individual differences among children . . . . The need to know the individual thoroughly and then deal with him accordingly has become an almost universally accepted principle of education."[1]

Many ideas have been expressed with the view to individualizing teaching. Shane lists thirty-five approaches to grouping that have been created, some tried, some discarded, modified or generally made a part of common practice.[2] The April 1968 Review of Educational Research analyzes recent research in media such as computer assisted instruction, programed instruction, language laboratories, motion pictures, educational television and the relationships of learner variables to these educational media. Relating to these factors Briggs states, "In this chapter, therefore, no solutions will be found for methods (italics in

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[1]Henry J. Otto and David C. Sanders, Elementary School Organization and Administration, (New York, Appleton-Century-Crofts Co., 1964), p. 97.

[2]Harold G. Shane, "The School and Individual Differences," Individualizing Instruction, The Sixty First Yearbook of the National Society for the Study of Education, (Chicago, The University of Chicago Press, 1962) p. 49.

the original) of making group presentations fill individual needs because we are still uncertain as to the needs of the learner."[3] This places the burden of determining the needs of the learner in the hands of the person who has the most prolonged contact with the child, the classroom teacher. Joyce is more optimistic; he states, "Advancing technology and new understandings are about to make it possible to prescribe for each child the learning materials and teaching strategies which closely match his achievement, ability and learning style."[4] This same publication proposes "an organizational model for the school; a structure which places teachers at the center of the decision making process and provides them with the supportive staff to help work with children, individualize instruction and personalize education."[5]

The emerging picture of the new role of the teacher is one of a coordinator and manager of learning experiences, diagnostician for learners and the decision maker in the learning situation. To allow the teacher to perform this role will require an examination of the present educational organization and consideration of future changes of which we may presently be only dimly aware. There appears to be little question that personnel such as subprofessionals, para-professionals, teacher aides, children aides, clerical assistants and monitors are, and will

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[3]Leslie. J. Briggs, "Learning Variables and Educational Media," Review of Educational Research-Instructional Materials, (38:160, April, 1968).

[4]Bruce R. Joyce, The Teacher and His Staff, Man, Media and Machines, (Washington, D.C., National Education Association, 1967), p. 8.

[5]Ibid., p. 9.

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continue to be, added to school staffs. The publication Auxiliary School Personnel, puts it this way, "The question today is not: Are teachers going to have aides? It is: How can aides be selected, trained and used effectively?"[6]

STATEMENT OF THE PROBLEM

The major purposes of this study are to compare the utilization of instructional time of first grade classroom teachers with and without full time teacher aides, to compare the academic performance of children in these two groups, and to examine the relationship between teacher and aide activity. The development of an observation instrument which could provide a timed record of teacher behavior, essential to securing data for the study, emerged as a sub-purpose. Five research questions were formulated and statistical hypotheses that would attempt to answer the research questions were established.

QUESTION I

Can a valid and reliable classroom observation instrument be developed which enables the observer to discriminate among Clerical Activity, Routine Activity, Total Group Instruction, and Differentiated Instructional Activity of teachers and/or aides and time the activity of teachers in these four categories?

QUESTION II

Will teachers with full time aides devote more time to instructional activities and provide more individual or small group instruction for children than teachers who do not have aides?

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[6]National Commission on Teacher Education and Professional Standards, Auxiliary School Personnel, (Washington, D.C., National Education Association, 1967), p. 12.

QUESTION III

Will the activities performed by aides have some pattern and logical relationship to the time teachers with aides would spend in non-instructional and instructionally related activities?

QUESTION IV

Will the addition of aides to the classroom have any effect upon pupil achievement as measured by standardized tests?

QUESTION V

Will there be a relationship between the time teachers with or without aides spend in non-instructional or instructionally related activities and pupil achievement?

NEED FOR THE STUDY

Classroom teachers numerically and economically constitute the single greatest investment in public education in the United States. Teachers' salaries alone will usually represent fifty to eighty percent of a local school system's total operational budget.[7] Instructional services, including teachers salaries and materials of instruction accounted for 71.8 percent of all monies spent on public education in the state of Maryland during the 1968-69 school year.[8] In Baltimore County, Maryland during 1968-69, 64.12 percent of the school system's

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[7]Charles S. Benson, The Economics of Public Education, (Boston, Houghton Mifflen Co., 1961), pp. 3-40.

[8]Maryland State Department of Education, Facts About Maryland Schools 1968-69, (Baltimore, State Board of Education, 1969), p. 19.

current expense budget was used for instructional services.[9]

In view of the fact that over fifty per cent of school operating budgets have historically come from local sources, and these mainly from local property taxes, school funding and teachers' salaries in particular are highly visible to the average taxpayer.[10] There are growing taxpayer demands for increased productivity and a reluctance to give education ever increasing support without some assurance that the quality of education will improve.[11] These demands for improved productivity and a greater return for the tax dollar eventually reflect themselves in pressure upon the classroom teacher and his role in the instructional program. The public demand for a quality educational program for the same or even smaller investment also brings with it a challenge and a stimulus for educators to examine the role of the classroom teacher and to provide the most economically feasible alternatives in staffing for the instructional program.

Schools are not immune to changes taking place within society.

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[9]Baltimore County Public Schools, Community Newsletter, (10:4, Towson, Fall 1969).

[10]"Property Taxes and the Schools," NEA Research Bulletin, (46:3, October 1968), p. 2.

[11]Reports of school district financial problems and school closings due to lack of taxpayer support for school tax levies can be found in the following references: National Education Association, "News and Trends," Todays Education, (58:3, January 1969); National Education Association, "News and Trends," Todays Education, (58:3, April 1969); National School Public Relations Association, Education U.S.A., (Washington, D.C., November 18, 1968), p. 67. Conflicts between Teachers Associations, School Boards and local taxing authorities are becoming a common occurrence see: National School Public Relation Association, Education U.S.A., (Washington, D.C., September 2, 1968), p. 1.

In the American economy manpower needs for industrial production have diminished in relation to the output of goods and the number of service occupations as a proportion of the total labor force has increased.[12] Estimates indicate that during the late 1960's more persons in the United States were engaged in human service occupations than in production of goods.[13]

Society, if it decides to, can reallocate its manpower resources into human service occupations which are not going to be automated out of existence. In the past the complexity of skills, the extension of formal preparation necessary and the low level of remuneration have combined to limit the number of persons who have entered the human service profession.[14] Recently some of the professions have begun to experiment with the introduction of an additional strata of workers into their fields.[15] Education has lagged but has made a beginning.[16]

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[12]United States Department of Labor, Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization and Training, (Washington, The Department, 1965), p. 2,

[13]Ibid., p. 53.

[14]John L. Colombotos, Sources of Professionalism, (Cooperative Research Project No. 330, Ann Arbor, Department of Sociology, University of Michigan, 1962), p. 6.

[15]American Hospital Association, Careers in Hospitals, (Chicago, The Association, 1963); S. Norman Feingold, Sal Swerdloff, Occupations and Careers, (New York, McGraw Hill Book Co., 1969), pp. 248-268; Priscilla A. Baker, "Aides Stretch Manpower in Human Services - Welfare and Recreation," Occupational Outlook Quarterly, (13:4, Spring, 1969).

[16]A detailed account of staff developments in the educational field is covered in Chapter II.

In commenting upon team teaching Anderson states, "teachers hold rather doggedly to traditional beliefs and practices, some of which may no longer stand the test of objective examination."[17] The same might be said of other groups within the educational system, but regardless of the resistance to change, further division of labor and an increase in specialization within the educational system appears to be inevitable. Simon has written, "specialization is not a condition of efficient administration: it is an inevitable characteristic of all group effort . . . ."[18] Benson also gives cogent reasons for specialization and increased division of labor. He states:

> Classification plans, of either a position or a rank type, represent attempts to establish order in the staffing of an activity under division of labor and to reinforce an orderly division of labor by adjusting monetary rewards to the various levels of job requirements. A well developed classification plan, moreover, assists in pointing the direction for increased efficiency through further division of labor . . .[19]

Specialization in elementary school staffing is occurring. For example, during the 1960's the staffs of elementary schools in Baltimore County grew to include part or full time personnel such as librarians, guidance counselors, speech therapists, visiting teachers, psychologists, corrective and remedial reading teachers, art teachers, vocal and instrumental music teachers, physical education teachers and school

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[17]Robert Anderson, Ellis A. Hagstrom and Wade M. Robinson, "Team Teaching in An Elementary School," School Review, (68:75, Spring, 1960).

[18]Herbert A. Simon, Administrative Behavior: A Study of Decision Making Process In Administrative Organization, (New York, Free Press, 1951), p. 21.

[19]Benson, op. cit., p. 442.

nurses.[20] These specialized personnel have generally provided supportive services for the classroom teacher and supplementary services for children, while having little effect upon the way the classroom teacher operates within the confines of his classroom.

In the latter part of the 1960's science specialists, media specialists and classroom teacher aides were assigned on a pilot basis to several different elementary schools in Baltimore County. The increasing importance of science and the growth in scientific knowledge apparently led many science oriented persons to believe that the average classroom teacher does not have the training or capabilities to provide the type of science instruction necessary for today's technological society. This viewpoint is still being debated and no clear conclusion is yet apparent.

The media specialist is an obvious proposal for helping teachers deal with the proliferation of audio instructional programs, visual programs and combinations of these two including instructional television, programmed instructional materials and machines and future computer assisted instruction. As Joyce suggests, little has been done to, "attempt to think through the job of constructing an educational system in which many teachers and resources work together for the benefit of the individual student."[21]

Although much of the new media can be found in use in the

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[20]Staffing guidelines for Baltimore County elementary schools for 1968-1969 are shown in Appendix B, p. 117.

[21]Joyce, op. cit., p. 9.

instructional program, they do not appear to have had the effect upon the role of the classroom teacher that the assignment of teacher aides can have. An aide to the classroom teacher is an obvious resource that cannot be left to gather dust or be ignored but, for better or worse, must be utilized in some manner. This "immediacy" of the effect of aides is an important reason for the early study and evaluation of their use. Nystrand and Bertoloet in summarizing the research on non-teaching personnel state, "hopefully the increased use of non-professionals will be accompanied by further research on (a) selection and training procedures, (b) relationship with teachers and students, (c) aide effectiveness at various tasks, and (d) resultant changes in teacher work patterns."[22] The need for research into staff utilization was also emphasized by Joyce, who wrote, "the need in the future appears to be for simultaneous development of more simpleminded fact-finding research (italic not in the original) to explore just what happens when teachers are utilized in different ways and of more sophisticated constructs that can guide research and improve staff utilization."[23]

This study cannot provide answers to the major questions relating to staff utilization but will serve as a guide for an approach in gathering objective evidence about the effects aides have upon the role and function performed by classroom teachers and in addition provide some

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[22]Raphael O. Nystrand and Frederick Bertoloet, "Strategies for Allocating Human and Material Resources," Review of Educational Research, (37:456, October, 1967).

[23]Bruce R. Joyce, "Staff Utilization," Review of Educational Research, (37:333, June, 1967).

direction for future research.

RATIONALE FOR THE STUDY

There are many problems related to investigation of classroom learning. Some perspective must be obtained, as Meux states:

> . . . by asking which of the many aspects or facets of the classroom are of interest when explaining classroom learning: individuals, interpersonal relations, group phenomena, behavior and still others. What aspects of this complex situation shall we focus on for inquiry in classroom learning? What aspects are to be explained? What aspects will do the explaining?[24]

Meux feels there are four choices involved in the investigation of classroom learning; (1) the locus which elements or components of the phenomena are to be taken as the units of analysis, (2) the attributes of the components which will be focused on - cognitive, affective, motivational, (3) the situation in which the outcomes occur and (4) the time continuum, short term or long term outcomes.[25]

In developing the locus problem for this study the observable activity of teachers and aides was identified as the primary unit of analysis. This approach to the analysis of teaching approximates Gages' suggestion that:

> Teaching can be analyzed according to types of teaching activities. Teachers engage in explaining activities, mental hygiene activities, guidance activities, demonstrating activities, order-maintaining activities, housekeeping activities, record-keeping activities, assignment-making activities, curriculum planning activities, test

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[24]Milton O. Meux, "Studies of Learning in the School Setting," Review of Education Research, (38:540, December, 1967).

[25]Ibid.

and instruction activities, and many other kinds of activities.[26]

The literature relating to the use of non-professionals, para-professionals or aides to the classroom teacher consistently point out that teachers were engaged in many trivial activities not related to instruction and that many of these activities can be better performed by aides.[27] The non-instructional, clerical and routine activities became one unit of analysis and instructionally related activities the other. The activities listed as clerical or routine were all activities that a trained aide could handle.

That individual pupils vary and have different needs and that a good educational program should provide for individual needs is an accepted position in American education.[28] The statement "auxiliary personnel allow teachers to do a better job of teaching, e.g., to individualize instruction," is typical of the inference from the literature that aides can help classroom teachers better meet the

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[26]Nathan L. Gage, "Theories of Teaching," Theories of Learning-Instruction, Sixty-Third Yearbook, (Chicago, National Society for the Study of Education, University of Chicago Press, 1964), p. 240.

[27]National Commission on Teacher Education and Professional Standards, op. cit.; National Commission on Teacher Education and Professional Standards, Auxiliary School Personnel, (Washington, D.C., National Education Association, 1967); Gertrude Noar, Teacher Aides at Work, (Washington, D.C., National Education Association, 1967); Department of Classroom Teachers, The Classroom Teacher Speaks on His Supportive Staff, (Washington, D.C., National Education Association, 1967); Gorda W. Bowman and Gordon J. Klopf, New Careers and Roles in the American School, (New York, Bank Street College of Education, 1967).

[28]Otto, op. cit.; Shane, op. cit.; Anderson, op. cit.; Association for Supervision and Curriculum Development, Individualizing Instruction, (Washington, D.C., The Association, 1964). Anne Anastasi, Psychological Testing, (New York, the Macmillan Company, 1961).

important goal of individualized instruction.[29] Because of this inference the instructional activity of teachers was broken down into two areas, (1) total group instruction and (2) differentiated instruction - more than one educational activity being carried on at the same time by the teacher. The reasoning used was that the teachers who were attempting to meet individual needs would provide for more individual or small group activity for their pupils.

The attributes of the units of analysis were then identified as those activities of teachers and aides relating to Clerical, Routine, Total Group Instruction and Differentiated Instruction. An instrument which would permit objective measurement of these attributes was needed.[30] Hagstrom's classification of teacher behavior was used as the basis for development of the classroom observation instrument used in this study.[31] A secondary attribute to be analyzed was the achievement of children as measured by standardized tests.

The situation to be observed was first grade classroom of teachers with and without aides. The first hour of instructional time of the school day was chosen as the time most likely to be free of distractions. This period, in grade one, is almost universally used for teaching reading and is referred to as the "reading period."

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[29]National Commission on Teacher Education and Professional Standards, Auxiliary School Personnel, op. cit., p. 8.

[30]The steps in developing the observation instrument used in this study are given in Chapter III, pp. 40-44.

[31]Ellis A. Hagstrom, "The Teachers Day," The Elementary School Journal, (62:422-431, May, 1962).

Concentrating upon teacher and/or aide activity as outlined above does not take into consideration such aspects of the classroom situation as the instructional methods employed by the teacher, the sequence of presentation, affective aspects of teacher-pupil interaction, teacher-pupil verbal interaction or any of the many other components of the teaching-learning situation that are important and deserve attention and further research.

By choice and necessity this study is limited to developing an approach for objective evaluation of the way classroom teachers utilize full time aides and to examine the following five research questions.

Question I. Can a valid and reliable classroom observation instrument be developed which enables the observer to discriminate among Clerical Activity, Routine Activity, Total Group Instruction, and Differentiated Instructional Activity of teachers and/or aides and time the activity of teachers in these four categories?

Question II. Will teachers with full time aides devote more time to instructional activities and provide more individual or small group instruction for children than teachers who do not have aides?

Question III. Will the activities performed by aides have some pattern and logical relationship to the time teachers with aides would spend in non-instructional and instructionally related activities?

Question IV. Will the addition of aides to the classroom have any effect upon pupil achievement as measured by standardized tests?

Question V. Will there be a positive relationship between the time teachers with or without aides spent in instructionally related

activities and pupil achievement?

DEFINITION OF TERMS

1. Achievement of pupils - pupil progress as measured by Lee-Clark Reading Readiness and Metropolitan Achievement standardized tests.

2. Aide-Class - refers to those classes which had a full time teacher aide.

3. Clerical Activities - teacher and/or aide activities such as preparing lessons, preparing material for pupils, putting up or taking down displays, correcting or grading papers, cleaning or tidying room, setting up or taking down audio-visual equipment, watching another person teach or conversing with another adult.

4. Control Classes - refers to the ten classes which did not have teacher aides.

5. Differentiated Instruction - refers to more than one instructional activity going on at the same time such as reading group, seat work, planned board work, aide working with a child or children, and children working at instructional centers such as language, hand-writing, arithmetic, science, music, library reading, arts and crafts and listening centers.

6. Experimental Classes - refers to the ten classes which had full time teacher aides.

7. Individual Instruction - instruction given to one pupil by teacher and/or aide regardless of activity or length of time.

8. Instructionally Related Activities - activities in the categories of Total Group Instruction or Differentiated Instruction.

9. Non-aide Class - refers to those classes which did not have a full time teacher aide.

10. Non-instructionally Related Activity - activities in the categories of Clerical or Routines.

11. Observers - the trained persons who visited classrooms to obtain data for this study.

12. Occupational Status - the occupation of the major wage earner in the homes of pupils in this study as defined by the United States Department of Labor.

13. Routine Activities - teacher and/or aide activities such as performing opening exercises, taking attendance, distributing or collecting materials, helping children with non-instructionally related problems, organizing class for a new activity and listening to the intercom system.

14. Small Group Activity - Any division of the total class into two or more groups with activities planned for each group by the teacher.

15. Total Group Instruction - all pupils in the class participating in the same instructional activity under the direction of teacher and/or aide.

16. Weighted Score - the sum of the minutes in differentiated instruction multiplied by the number of instructional activities for each minute.

LIMITATIONS

This study was limited to an examination of observed teacher and/or aide activity as revealed by the "Teacher and Aide Activity Observation Instrument" designed for this study and does not attempt

to evaluate other aspects of the classroom teaching-learning situation however imprtant these may be.

The limited number of teachers in the study (20) and the forced selection of teachers from operational classroom precludes generalizations to other populations from this study. These factors also precluded the construction of a true experimental design and this allows variables to go uncontroled which may affect the results of the study.

This study was limited to the first grade level and to classes of children at this level identified by the Lee-Clark Reading Readiness test as having the lowest reading potential. All of the pupils were in regular self-contained classrooms in Baltimore County Public Schools and none were involved in team teaching or departmentalization.

The observational samples of teacher behavior were made during the first hour of instruction in the morning and may not represent an accurate description of the teacher's and/or aide's activities over the total school day or over the school year.

The measurement of pupil achievement was limited to the Lee-Clark Reading Readiness Test and Metropolitan Achievement Test. The lack of homogeneity of variance between the scores of control and experimental pupils limits seriously the interpretation from the analysis of covariance.

ORGANIZATION

This chapter has stated the problem to be studied, the importance and rationale for the study and an explanation of terms and limitations of the study.

Chapter II reviews the related literature and provides a historical perspective on the addition of human resources to the classroom situation.

Chapter III covers the procedures used in the development of "The Teacher and Aide Activity Observation Instrument" and tests of validity and reliability of the instrument.

Chapter IV covers the procedures used in the study and includes sample selection and comparisons, procedures for gathering observation data and pupil achievement data and a description of the statistical procedures used to test the hypotheses.

Chapter V gives the results of the study relating to four research questions and eleven hypotheses pertaining to the research questions.

Chapter VI presents a summary and the conclusions of the study along with recommendation for future research and study.

The Appendix contains copies of all pertinent correspondence, raw observational data, individual pupil achievement scores and demographic information on Baltimore County, Maryland.

CHAPTER II

HISTORICAL REVIEW OF THE LITERATURE

INTRODUCTION

The provision of non-professional assistance to classroom teachers can be grouped in four major categories: (1) clerical aides or secretaries to teachers, (2) lay readers, lab assistants or others assigned to a group of teachers to perform a specific function, (3) playground, cafeteria, hall, bus or other positions requiring monitoring duties and (4) aides assigned specifically to an individual teacher to assist the teacher in many ways. It is the latter category which is the main concern of this study and which will receive the primary emphasis in the review of the literature.

TRENDS

The desire to make schools more efficient and to improve the teaching-learning situation is not new. Unfortunately many past efforts have been aimed at reducing educational expenditures rather than directed toward improving the productivity of schools.[32] The period of time from 1950 to the present saw the beginning of some earnest attempts to improve, through new and innovative approaches, the use of school staff. Two major projects in the mid 1950's gave impetus to the use of non-

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[32]Raymond Callahan, Education and the Cult of Efficiency, (Chicago, University of Chicago Press, 1962).

professional personnel. In 1953 the Ford Foundation sponsored a project originated by Central Michigan College in the assignment of general aides to classroom teachers. The project which was conducted in the Bay City, Michigan public schools became referred to as the "Bay City" experiment.[33] In this program the aide to the teacher was viewed as a means of allowing the classroom teacher to deal with larger classes. The second major project, the Yale-Fairfield study, was completed in the middle 1950's and was oriented toward improving classroom productivity.[34] According to Miles, by the school year 1960-1961 nine per cent of the elementary schools and eighteen per cent of the secondary schools were using aides in some manner.[35] An NEA Research Office survey on teacher aides revealed that during the school year 1965-66, 217 school systems of over 12,000 enrollment, only two systems did not employ paid aides in some manner.[36] The same report showed that the number of systems with aides has increased greatly since 1960; 36.4 per cent of the schools began aide programs in the five year period from 1960 to 1965 and 40.1 per cent reported that their aide program began in the 1965-66 school

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[33]Charles E. Park, A Cooperative Study for the Better Utilization of Teacher Competencies: Second Printed Report. (Mount Pleasant, Central Michigan College, 1955, Final Report 1960).

[34]John J. Howell, Teacher Assistants: An Abridged Report, (New Haven, Yale University, 1959).

[35]Matthew B. Miles, "The Nature of the Problem," Innovation In Education, (New Haven, Teachers College, Columbia University, 1964) p. 6.

[36]National Education Association, Teacher Aides in Large School Systems, (Washington, D.C., Educational Research Circular No. 2, April 1967).

year.[37]

The Baltimore County school system's employment of teacher aides reflects the trends outlined above.[38] Aides to regular classroom teachers were not a part of the staffing procedures until the 1966-67 school year when the system inaugurated a program under Title I of the Federal Elementary and Secondary Education Act.[39] Prior to this program the only aides in the school system were those assigned to teachers of special education classes. The federally sponsored program employed thirteen full time aides in 1966-67, twenty-one full time and eleven part time aides in 1967-68 and forty full time and thirty-three part time aides during the 1968-69 school year. Also during the 1968-69 school year the Superintendent and his staff decided to provide aides to schools where the school was overcrowded and where there were no classrooms or temporary quarters available to house the surplus population. For every fifteen pupils over the average class size of thirty a school could receive a full time aide. On this basis forty-three full time and four part time aides were assigned to thirty-two elementary schools.

The evidence suggests that there is a strong trend in many school

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[37] Ibid.

[38] A completed description of staffing developments in the Baltimore County Schools can be found in Appendix C, pp. 119-125.

[39] In 1965, The U.S. Office of Education published guidelines which suggested the use of subprofessional personnel for assisting teachers. "Guidelines, Special Programs for Educationally Deprived Children," (Draft, Office of Education, Health, Education and Welfare, October 8, 1965), p. 20.

systems toward the establishment of at least one echelon of non-professional classroom workers hierarchically below the professional teacher.

TEAM TEACHING

During the last fifteen years developments such as non-graded schools, middle schools, modular scheduling, instructional television, programed instruction and team teaching have had varying degrees of impact upon the way school staff have been utilized. The fact that almost all team teaching projects have involved some type of non-professional supportive staff suggests the necessity for a review of some of the major developments in this area.

Buffie reports an attempt at team teaching in the 1930's then called "The Cooperative Group Plan".[40] This plan proposed a group of subject matter specialists who would work cooperatively to coordinate their efforts in planning and evaluating the work of students. This program disappeared and resurfaced in the mid 1950's as "Team Teaching."

Two institutions which have promoted the development of team teaching experiments have been Harvard University and Claremont Graduate School. Fischler in writing on the Harvard program summarized its approach.

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[40]Edward G. Buffie, "A Historical Perspective," Bold New Venture, David W. Beggs III and Edward Buffie (ed), (Bloomington, Indiana, University Press, 1967) p. 14.

> Team teaching organization also is built on several assumptions. A major one is that improved instruction and better learning will result if we discover, demonstrate, and practice new and more promising ways of organizing and using staff, . . . make optimum use of each teacher's time; use hierarchical positions for advancement of career teachers . . . use more effectively teacher abilities and talents in the instructional process through a reorganization of personnel arrangements . . . use a non-professional staff for non-professional tasks.[41]

Mitchell in reporting on the Claremont "Teaching Team Program" indicates that the use of teacher aides should allow teachers to be freed from routine and clerical tasks but failed to emphasize other benefits derived.[42]

Typical of the evaluation of the use of non-professionals in team teaching is Bair and Woodward's conclusion on the Havard-Lexington experiments. "The use of aides for non-professional tasks frees the teachers for planning, teaching, conferences, and other professional activities and ultimately results in improved instruction."[43]

Shaplin and Olds in their review do cover problems as well as successes and acknowledge that hierarchical functions and use of non-professional workers in team teaching situations can produce functional problems.[44]

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[41]Abraham S. Fischler, "The Use of Team Teaching in Elementary School," School Science and Mathematics, (62:282, April 1962).

[42]Ronald Mitchell (ed), Annual Report, 1962-63: Claremont Teaching Team Program, (Claremont, Claremont Graduate School, 1963).

[43]Medell Bair and Richard G. Woodward, Team Teaching in Action, (Boston, Houghton Mifflen Co., 1964) pp. 12-15.

[44]Judson L. Shaplin and Henry F. Olds, Jr. (Eds), Team Teaching, (New York, Harper and Row Co., 1964).

Hair in discussing team teaching relating to youth education feels that "apprehension on the part of some teachers about the use of noncertified personnel in the schools is not realistic . . . the use of clerical aides and instructional aides, as demonstrated by a number of schools, can support the role of the teacher and help him to function in a truly professional way."[45]

Joyce states:

> Fifteen years of innovation in team teaching have left us with almost no research evidence . . . . There is little evidence of the effects of mixing people of different teaching styles on various teams . . . . Most of the research on the use of para-professionals on teams has been defensive research aimed at working out minimal roles for such personnel and proving that they do not harm the children who are exposed to them. Since the early 1950's, knowledge about the use of para-professionals has not increased as a consequence of a carefully done research project.[46]

The viewpoints in this section of the review indicate that there is a consistent move by theorists and proponents to supply the teacher with non-professional workers and that the lack of hard research findings does not appear to reduce the movement in this direction. The one positive finding appears to be that teachers have many tasks which can be performed by persons without professional training and that teachers in general report they are happy to have someone else do them.

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[45]Donald Hair, "An Organizational-Methodological Perspective," Youth Education, (Washington, D.C., Association for Supervision and Curriculum Development, NEA, 1968).

[46]Joyce, "Staff Utilization," op. cit., p. 328.

EMPLOYMENT OF TEACHER AIDES AND THEIR DUTIES

The legal aspects relating to the employment of teacher aides has been summarized by Alexander. He states, "the weight of judicial authority . . . seems to support the general premise that in the absence of statutes to the contrary, the power to hire and pay teacher aides is within the authority of local school districts."[47]

Relating to action by state legislatures Alexander writes:

> While there seems to be no great trend in this direction, some state legislatures in recent years have enacted statutes providing for teacher aides for specific purposes, while others are rather comprehensive and provide a very realistic legal and broad scale basis for such employment.[48]

Alexander reports on the states of Massachusetts and Washington which in 1965 authorized the employment of lunchroom aides and on the states of California, Nevada and Illinois which in 1966 and 1967 provided for the employment of teacher aides for more general use.[49] In these latter three states the establishment of aides' duties were left to the state departments of education or to local school boards. On the question of what authority aides can have, Alexander feels that because all states have certain minimal qualifications for teachers, a teacher aide is not authorized to perform instructional duties or to teach.[50]

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[47] S. Kern Alexander, "What Teacher Aides Can - and Cannot Do," Nations Schools, (82:23, August 1968).

[48] Ibid.

[49] Ibid., p. 24.

[50] Ibid., p. 25.

The question of what activities the teacher aide should perform appears to rightly rest with the education profession. There is little disagreement in the literature that many of the clerical and housekeeping chores traditionally associated with teaching can and should be delegated to non-professional personnel.[51] The NEA Research Division in its survey on teacher aides found that the ten most widespread duties of paid aides were:

> Duplicating tests and other materials.
> Helping with classroom housekeeping.
> Typing class materials, tests, etc.
> Setting up audio-visual equipment and other instructional materials.
> Helping with children's clothing.
> Supervising the playground.
> Correcting tests, homework, workbooks, etc.
> Reading aloud and story telling.
> Assisting in the school library.
> Collecting money from pupils.[52]

This list of duties is representative of the type of activities which the literature suggests be delegated to teacher aides or other non-professional personnel.

A full time aide assigned to an individual classroom teacher is in a situation where he will have many opportunities for direct contact with children. It is not likely that an aide in this situation will have enough clerical and housekeeping chores to keep him busy all day.

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[51]The following references are a selected sample of the literature which supports this viewpoint. Joyce, "Staff Utilization," op. cit., p. 328; Nystrand and Bertoloet, op. cit., p. 456; National Commission on Teacher Education and Professional Standards, Auxiliary School Personnel, loc. cit., Noar, loc. cit.; Bowman and Klopf, loc. cit., Park, loc. cit.; Howell, loc. cit.; Shaplin and Olds, loc. cit.; Mitchell, loc. cit.

[52]National Education Association, Teacher Aides in Large School Systems, loc. cit.

Under these conditions it is not surprising that aides have become involved in the instructional program as evidenced by these paragraphs from the Yale-Fairfield study.

> A-priori determination of 'teaching' and 'non-teaching' duties does not correspond very well with what responsible teachers will actually delegate when given a free hand. Tasks actually delegated included many teaching activities of a fairly easy kind. Just what tasks should be delegated can be determined by carefully selected teachers, on the basis of their own abilities, those of their students, pupil needs, and other circumstances in the teaching situation.
>
> Helping with instruction, undoubtedly the most controversial of of the assistants' functions, actually constituted the greatest single share of their workload in most instances according to the records kept. Many of the assistants' duties were carried on in the classroom and in the presence of children; otherwise her usefulness to the teacher would have been severely restricted. The distinction between teaching and nonteaching duties is somewhat blurred and not particularly useful as a means of determining what may properly be delegated to the assistant. The teacher's job is so broad as to include many tasks that are easy and make little demand on professional preparation, yet whose importance in the total process is unquestionable. At the other extreme the job includes tasks that may challenge the teacher at the highest level of her professional competence. The variety of instructional situations in which the cooperating teachers found it practicable to have the assistant help is rather surprising. Particularly frequent was the use of the assistant to help individual pupils with their work.[53]

Findings similar to the above were obtained by Schmitthausler who studied four school districts that had non-professional classroom helpers and evaluated their duties using the following thirteen functions:[54]

1. Discussion of pupil needs with parents
2. Evaluation of pupil progress and needs
3. Planning

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[53]Howell, op. cit., p. 40.

[54]Carl Marvin Schmitthausler, "Analysis of Programs using Non-Professional Teacher Helpers in Public Elementary School Classrooms," (Unpublished Doctoral Thesis, University of California, Berkeley, 1966).

4. Diagnosis
5. Class management
6. Assigning tasks
7. Recording information
8. Presenting facts
9. Presenting concepts
10. Guiding pupils to choose between behavior alternatives
11. Discussing pupils' work with them
12. Supplying material
13. Housekeeping

Most teachers in Schmitthausler's study felt they could share or delegate items 10, 11, 12 and 13. Approximately fifty per cent felt they could share items 8 and 9 and a few felt they could share items 5, 6 and 7. Item 1 was completely reserved by the teachers as their exclusive domain, and items 2, 3 and 4 by the great majority. Schmitthausler, as well as Perkins, found considerable disagreement between what teachers say they can delegate and what they share with aides in the privacy of their classroom.[55] Perkins gives the following as his statement of the appropriate role of the para-professional classroom helper:

> The role of the para-professional is to assist the classroom teacher with routine procedures and under his direction to perform special assignments. The assignments will vary according to the nature of the special competencies and to the degree of interest and ability to work with children and adults that the para-professional

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[55]Byce Perkins, Factors Which Have Influenced the Development of the Paraprofession in the Elementary Schools of Norwalk, Connecticut, (New York, New York University, 1961).

may have.[56]

The concept of the aide's role as a performer of menial or clerical tasks has changed with the realization that the kinds of jobs aides can perform vary greatly and are influenced by the teacher's attitude and capabilities, the aide's education and ability, grade level, subject, kind of community, educational philosophy and possibly other factors. The publication Auxiliary School Personnel puts it this way:

> Auxiliary personnel should free professionals to execute professional responsibilities. Any hard and fast list of auxiliary duties could create a wrong impression, because such assignments should be conditioned by the needs of a given teaching situation.[57]

SOURCES OF CHANGE IN THE MID 1960'S

During the middle and latter part of the 1960's several movements occurred which provided interrelated momentum for changes in school staffing and gave support for the inclusion of non-professional personnel as aides to classroom teachers. These major developments were the Elementary and Secondary Education Act of 1965, the "New Careers" movement of the mid 1960's, the Bank Street College of Education study, the results of the 1966-67 "Year of the Non-conference," sponsored by the Department of Classroom Teachers of NEA and several publications sponsored by the National Commission on Teacher Education and Professional Standards.

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[56] Ibid., p. 68.

[57] National Commission on Teacher Education and Professional Standards, Auxiliary School Personnel, (Washington, D.C., National Education Association, 1967), p. 10.

The passage of the 1965 Elementary and Secondary Education Act provided many school districts with the necessary funds to employ teacher aides. The U.S. Office of Education guidelines for 1965 suggested the use of sub-professionals for assisting teachers in educating culturally deprived children under Title I of this program.[58] The NEA Research Division in their 1965-66 survey of Teacher Aides reported that one-fourth of the 217 school systems depended upon federal funds for complete funding of aides and one-half the systems depended upon federal funds for partial support.[59] As stated earlier in this chapter funds from the Elementary and Secondary Education Act were used to provide the first full time aides to classroom teachers in the Baltimore County schools.[60]

The "New Careers" idea is credited mainly to Frank Riessman and Arthur Pearl who in 1965 published a book titled New Careers for the Poor.[61] Much of the literature on "New Careers" still refers to that volume. The center of the movement has been New York University where Frank Riessman is professor of Educational Sociology and runs the New Careers Development Center and the New Careers Training Laboratory.

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[58]"Guidelines, Special Programs for Educationally Deprived Children," Draft, (Washington, D.C., U.S. Office of Education, October 8, 1965), p. 20.

[59]NEA Research Bulletin, (Vol. 45:2, National Education Association, May, 1967), p. 39.

[60]The reader is referred to Appendix C, page 148 of this paper.

[61]Arthur Pearl and Frank Riessman, New Careers for the Poor, (New York, The Free Press, Macmillan, 1965).

Powledge calls "New Careers" more than the creation of new positions but a theory based upon the following ideas:

> Recognition that the Nation sorely needs more workers in the 'human services' fields -- health, education and welfare.
>
> Recognition that there are millions of people who could work in those fields but lack the necessary training and academic credentials.
>
> Recognition that it is possible to separate the tasks of the human services into categories, some of which could be carried out only by full professionals; others could be performed by non-professionals.
>
> Belief that the non-professionasls can be trained to perform some of those tasks very quickly and that while workers on the job they can learn to perform more and more professional work. They will be eligible to move up a "career ladder," until finally those who aspire to professional status may achieve it.
>
> The most important factor: That even while they are training for those professional tasks workers will be engaged in careers, not just dead-end or make-work jobs.[62]

The "New Careers" approach according to its proponents promises easier access to starting level jobs, in addition to an open ended opportunity for career advancement with continuous built in training for the participant.

The Bank Street College of Education adopted the "New Careers" philosophy in its direction and study of fifteen educational aide training programs being conducted across the United States. This project was carried out from 1966 to 1968 under a contract with the United States Office of Economic Opportunity. The report of this study New Careers and Roles in the American School by Bowman and Klopf was heavily circulated

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[62]Fred Powledge, New Careers, Real Jobs and Opportunity for the Disadvantaged, (New York, Public Affairs Committee, 1968), pp. 3-4.

and received wide consideration in professional literature.[63]

The basic hypothesis of the Bank Street College study was "that the utilization of low-income workers as auxiliary personnel in school settings may, with appropriate role development, training and institutionalization have positive outcomes for pupil learning, home school relationships, teacher competence, the development of auxiliaries as workers and persons, and the system in its totality."[64] The fifteen programs were analyzed through the use of uniform questionnaires, through observations by visiting teams and through interviews with instructional staff and other participants.

The following three findings from the above study seem well substantiated:

1. Training - preferably team training of teachers and auxiliaries who would be working together - was seen as essential to the effective use of auxiliaries.

2. Job definition was necessary to provide a frame of reference and prevent over or under utilization of auxiliaries, but these specifications needed to be applied flexibly to meet the needs of the situation. The opportunity for career development was not in evidence but was considered to be a crucial factor for adding variety and scope to the program and for job satisfaction of auxiliaries.

3. The development of an effective program depends upon the

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[63]Garda W. Bowman and Gordon J. Klopf, New Careers and Roles in the American School, (New York, Bank Street College of Education, 1967).

[64]Ibid., p. 11.

school system's willingness to accept it as an integral part of its program or institutionalization as the report calls it.

Although the Bank Street College study suggested positive outcomes relating to pupil learning, improved home school relationships and greater teacher competency, there was little evidence presented on which these factors could be judged.

Several events within the organized education profession provided strong stimulus for a reexamination of the role of the classroom teacher and the need for non-professional help. The Department of Classroom Teachers of NEA "Time to Teach" project during 1965-66 focused increased attention upon the need for a better use of the professional skills of teachers.[65] In 1966-67 the National Commission on Teacher Education and Professional Standards of NEA identified "The Teacher and His Staff" as one of the major study areas. In November of 1966 the Department of Classroom Teachers with the support of the Commission and other NEA departments sponsored a national study conference on the "Classroom Teacher and His Supportive Staff." The conference centered on the classroom teacher as the focal point in the educative process, giving primary attention to identifying, (a) classes of para-professionals and administrators and the responsibility of each to classroom teachers and (b) relationships among these segments of school personnel to the end

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[65] National Education Association and Department of Classroom Teachers, Time to Teach: Action Report, (Washington, D.C., The Association, 1966).

that the classroom teacher can give maximum service to the student.[66]

The report of this conference identified the classroom teacher's supportive staff as other Certified Educators, Professional Non-educators, Para-professionals and a miscellaneous group of persons who might have contact with the teacher or students. The value of this study was not in the definitive answers provided but in the attempt to examine the total school staffing picture as it relates to the role of the classroom teacher and the interrelationships among all school staff in the provision of an educational program for children. This larger view appeared to be instrumental in shaping the thinking that has gone into the development of the concept of Differentiated Staffing.

Dwight W. Allen's writing on Differentiated Staffing suggests, "a structure based on levels of responsibility in a teaching organization that takes its overall shape from what needs to be done educationally, now and in the future, in a given school, from what teachers are available and best qualified to be responsible for the tasks identified."[67] Allen's proposal would place educational policy making in the hands of the most talented teachers, the assignment of teaching talent where it will do the most good and provide an expanded nonteaching category of classified personnel to handle clerical functions.[68]

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[66]National Education Association and Department of Classroom Teachers, The Classroom Teacher Speaks on His Supportive Staff, (Washington, D.C., The Association, 1967).

[67]Dwight W. Allen, A Differentiated Staff: Putting Teaching Talent to Work, (Washington, D.C., National Education Association, December 1967), pp. 2-3.

[68]Ibid., p. 5.

The growth of the Differentiated Staffing concept is attested to by the fact that the Association of Classroom Teachers of the National Education Association devoted its 1968 study conference to the topic "Differentiated Teaching Assignment of Classroom Teachers."[69] The viewpoint of the conference was that, "Differentiated teaching assignments should provide for more effective use of human resources by . . . recognizing the individual differences of teachers; allowing classroom teachers to assume responsibility and initiative commensurate with their interests, talents and abilities . . . involving the teacher in the decision making process . . . establishing a climate that fosters creative involvement of staff . . . creating a team approach to education . . . ."[70] The use of non-professionals as supportive staff for the teaching profession was an integral part of the proposals coming from this conference.

The degree to which the concept of Differentiated Staffing will affect the role and function of the majority of classroom teachers remains to be seen. The intent of this section of the review has been to show that along with team teaching and other proposals for improving instruction one concept of Differentiated Staffing considers the use of non-professionals as aides to teachers an essential ingredient of school staffing.

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[69]Association of Classroom Teachers, "ACT Viewpoints," Today's Education, (58:60-61, National Education Association, March 1969).

[70]Ibid., p. 60.

RESEARCH ON THE EFFECT AIDES HAVE ON TEACHER ACTIVITY AND PUPIL ACHIEVEMENT

The literature reveals a wealth of material describing, promoting and supporting the use of teacher aides but a lack of well designed and conducted research studies which provide evidence that teacher aides contribute to the productivity of classroom teachers or to the achievement of pupils.

The Bay City study evaluated the impact of teacher aides on the work of elementary school classroom teachers and on the achievement of pupils.[71] The results indicated that teachers devoted more time to more critical teaching tasks when they had the use of aides. This finding is suspect since the task definitions used seem unrelated to theoretical or philosophical foundations of teaching and no conclusive evidence is presented that children learned more.

The Yale-Fairfield study reported subjective opinions of teachers, pupils, parents and administrators as a basis for the conclusion that teachers benefited from the prensence of aides.[72] A Baltimore County study utilized the same procedures and arrived at similar conclusions.[73]

The evaluation of the Minneapolis Teacher Aide Program also depended upon questionnaires to analyze duties of aides but with no

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[71]Park, loc. cit.

[72]Howell, loc. cit.

[73]Baltimore County Board of Education, Analysis of Questionnaires for The Study of Classroom Teacher Aide Program, mimeographed, (Towson, Maryland, September, 1967).

attempt to evaluate the performance of the classroom teacher.[74] Fifty per cent of aide time reportedly was spent in areas relating to routines; supervision of large groups, twenty-four per cent; and giving personal attention to pupils, twenty-two per cent.[75] This study is of special interest because it reports a research project involving nine kindergarten classes with the assignment of aides to selected classes in an attempt to determine if aides can be used effectively to develop reading readiness. The project used three classes with no aides, three classes with one aide each and three classes each with five aides. The Metropolitan Readiness Test was used as the measure of pupil achievement. The results had limited reliability but did show that children gained more in reading readiness when aides were present in the classroom. An interesting finding was that children in classes with one aide made slightly greater gains than children in classes with five aides each.

In January of 1969 the National Commission on Teacher Education and Professional Standards in cooperation with the New Careers Development Center of New York University sponsored a National Conference on the Para-professional, Career Advancement, and Pupil Learning. Twelve agencies from across the United States representing individual schools, school districts, colleges and universities provided brief descriptions

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[74]Minneapolis Public Schools, Teacher Aide Program - A Research Report, (Minneapolis, Minneapolis Public Schools, 1967).

[75]Ibid., p. 9.

of their aide training projects.[76] Although these descriptions by necessity had to be brief only two reports presented research evidence relating to aide activity, teacher activity or pupil achievement. One of these was the Minneapolis project previously discussed in this review.[77] The other project which reported research was the Greenburg Central School District No. 7, Hartsdale, New York.[78] In this project a trained psychologist recorded minute by minute for thirty minutes the behavior of the classroom teacher and classroom aide. The results of these observations were:

> (a) the total amount of actual teaching time (that of the teacher and the aide) was beyond what one could optimally expect during any thirty minute period, with only a single teacher in the classroom. This finding in no way referred to quality or content of instruction. (b) Teachers spend between 11-21 minutes on the average with small groups and 3-7 minutes with one child. With Greenburgh's emphasis on individualized instruction this may be a significant breakthrough. Teacher-aides average from 6-14 minutes with small groups and 11-19 minutes with one child. The direction of pre and post observations was for the aide to have begun to substantially work more with individual children. (c) The trend regarding teacher interruptions showed a slight decline. Of significance, the teacher aide began to receive a larger numer of interruptions redirecting them from the teacher and presumably releasing the teacher for more uninterrupted instruction.[79]

The reader of course cannot judge if the time is beyond the optimal for the average single teacher in the classroom because this

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[76]National Commission on Teacher Education and Professional Standards and New Careers Development Center, Description of Paraprofessional Programs in Education, (preliminary report of National Conference on Paraprofessional, Career Advancement, and Pupil Learning, mimeographed, Washington, D.C., 1969).

[77]Minneapolis Public Schools, loc. cit.

[78]National Commission on Teacher Education and Professional Standards, op. cit., second report.

[79]Ibid.

standard is not reported. Relating to pupil achievement the report states:

> (2) It is of value to report the end of the year second grade Metropolitan Achievement Test score in paragraph reading in comparison with last year's results (May 1967). The median score for both years is on grade level (2.). However, what is interesting is the distribution of scores for classes. The number of classes scoring above grade level (3.0) increased from 2 to 5, and the number of classes scoring below grade level (2.0) decreased from 5 to 4. Since all classes are ethnically and intellectually balanced, then one must assume that the achievement test outcomes were influenced by other factors, presumably, the introduction of a new classroom practitioner, the teacher-aide. One must be careful not to assume that test performances alone are a valid measure of any program's success.[80]

It is only fair to point out that the Greenburg School District and the other agencies that reported could very possibly have well substantiated research data that has not been released or published.

The lack of research evidence to date indicates that a number of critical research questions regarding the provision of non-professional support for classroom teachers remain unanswered. Anderson's commentary after a thorough review of the literature in 1964 is still pertinent:

> Although it seems clear that non-professionals can and should be used more widely in the schools than they have been, it remains to be learned whether a proportionate reduction in the professionally certified staff is warranted or desirable. The waste of talent of certificated teachers on routine and minor tasks becomes more evident as teachers' total responsibilities are examined. However, where the line should be drawn between professional and non-professional tasks is by no means clear at this point. Questions

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[80] Ibid.

must also be raised with respect to the recruitment, selection, training, and supervision of non-professional workers in a variety of roles.[81]

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[81]Robert H. Anderson, "Organizational Character of Education: Staff Utilization and Deployment," Review of Educational Research, (34:459, October, 1964).

CHAPTER III

DEVELOPMENT AND ANALYSIS OF THE OBSERVATION INSTRUMENT

INTRODUCTION

A valid and reliable observation instrument was essential for observers to use in collecting data for this study. Because of the importance of the instrument this chapter is devoted to three main topics: (1) the development of the observation instrument, (2) the description of the observation instrument and (3) an analysis of research question I relating to the instrument.

DEVELOPMENT OF THE OBSERVATION INSTRUMENT

Initial Preparation of Categories and Items. A search of the literature and other inquiries by the investigator did not uncover any available classroom observational instruments which could be used in their entirety or be slightly modified for use in this study.[82] The most useful instrument was in a study by Hagstrom in which four trained observers recorded the behavior of twenty-five elementary school classroom teachers over a period of eighteen days.[83] Between 8:00 a.m. and 3:00 p.m. the observers made one round of the school every twenty-five minutes and tallied the behavior of each classroom teacher. Hagstrom's instrument

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[82]The relationship of the observation instrument to the Rationale For The Study is given on pages 10-13 of the first chapter.

[83]Ellis A. Hagstrom, "The Teacher's Day," The Elementary School Journal, (62:422-431, May, 1962).

contained eighteen clearly defined categories:

1. Conducting routines
2. Control
3. Presenting information
4. Instructional supervision
5. Non-instructional supervision
6. Observing
7. Interacting with adults
8. Reading
9. Writing - creative
10. Writing - clerical
11. Clerical - general
12. Materials manipulation
13. Transition - pupils
14. Transition - teacher
15. Travel
16. Personal
17. No interpretable activity
18. Unable to observe[84]

Hagstrom's activities and description of categories formed the basis for the initial Clerical, Routine and Instructional categories used in the preliminary observation instrument.

The development of items to identify Differentiated Instructional Activities came from a pragmatic point of view. What was needed was a listing of activities in which pupils could engage, and which would indicate teacher provision for individual or small group needs. Observation of classes and discussions with teachers and administrators showed little use of programed texts and teaching machines. There was some use of multiple listening centers, individual or small group viewing of loop films and film strips, library reading centers, games, arts and crafts, and materials for children to practice arithmetic and language skills. All teachers utilized reading groups and seat work in their instructional programs.

From this information a survey form was developed which was sent to twenty-six randomly selected elementary schools in Baltimore County.[85]

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[84] Ibid., p. 226.

[85] The twenty schools which were to be used in the study were excluded from the survey population. A copy of the survey form can be found in Appendix D, page 126.

The letter to the principal asked him to select one first grade teacher to respond to the survey.[86] Twenty of the twenty-six schools responded, with two schools submitting three responses each, for a total of twenty-four responses.

Of the seven items listed in the survey the teachers favored the following activities by the number indicated below.

Reading group	24
Reading centers	24
Arithmetic center	22
Listening center	21
Language center - phonetics	21
Language center - sentence or word structure	20
Arts and Crafts	17

Under other suggestions the teachers included:

Science center	6
Games center	5
Viewing center	5
Social living center	2
Writing center	2

All twelve of these activities were included in the observation instrument as Differentiated Instructional Activities.

Timing Mechanism. The necessity for timing multiple observations, and the need for observer freedom to move about the room eliminated electrical or large recording devices such as video tape.[87] Stopwatches were chosen as the most practical timing mechanism.

Four stopwatches were mounted to a clipboard so each stopwatch was opposite a category as shown in Figure 1, page 43.

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[86] A copy of the letter to the principals is shown in Appendix E, page 128.

[87] A video tape of a classroom with a teacher and a teacher with an aide was made for use in training observers.

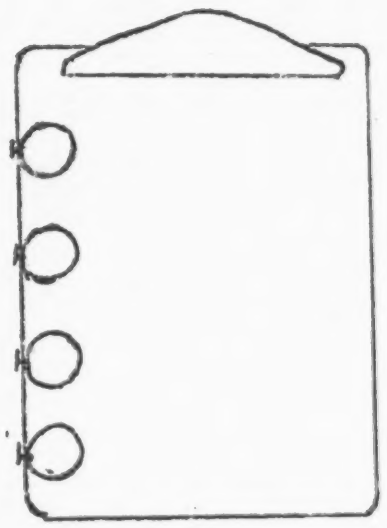

FIGURE 1

TIMING DEVICE

Preliminary Use of the Instrument. The information from the literature and "Teacher Activities Survey" was used to write a description of Clerical Activities, Routine Activities, Total Group Instruction and Differentiated Instructional categories as well as procedures for timing and recording observations. The instrument described above was used by the investigator for five, one hour observations of first grade classrooms. From these observations and after a conference with the research committee members, the categories were further refined and administration procedures clarified. The one hour observation period was divided into four ten minute periods to allow a comparison of activities over the four time periods. The time recorded would reflect the teacher's participation in clerical and routine activities and the teacher's and children's participation in Total Group Instruction and Differentiated Instruction. The aides' activities were to be tallied for each activity performed.

Trial of the Instrument. Three observers, an elementary school

principal, vice-principal and classroom teacher were trained by the investigator to use the revised instrument. Sixteen observations including the investigator's, were made in fourteen first grade classrooms and two second grade classrooms. These observations were in six different schools with six of the observations being made of teachers who were working with aides, student teachers or parent volunteers.[88]

The observers agreed that the descriptions of the categories were clear and that the items placed within categories were satisfactory. Minor suggestions were made for greater clarity in administrative procedures and these were incorporated in the final observation instrument.

The Teacher and Aide Activity Observation Instrument described in the next section of this chapter has been reproduced exactly as it was given to the observers for their use in collection of data for this study.

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[88]The number of first grade classroom teachers with aides was limited and care had to be taken not to utilize schools in which the study was to be conducted.

TEACHER AND AIDE ACTIVITY OBSERVATION INSTRUMENT

Introduction

This instrument is designed to time the functions carried out by first grade classroom teachers and to tally the functions performed by aides. It is not intended to measure technique or mode of presentation. Human behavior is complex and varied; any attempt to observe and categorize behavior must place some limitations on the scope of the activity to be recorded. This instrument does provide for simultaneous recording of multiple acts of the teacher and/or aide.

Read the directions carefully; become thoroughly familiar with the categories to be recorded.

General Information

Description of Instrument. The instrument consists of a clipboard with four stopwatches attached and recording sheets to be placed on the clipboard. Each recording sheet contains four categories of activities; clerical, routine, total group instruction and differentiated instruction. Recording sheets should be placed on the clipboard so that each category is opposite a stopwatch. Sub-items are listed under each category heading for quick identification of teacher and/or aide activity.

The record sheet also contains an area to record, by minute, the number of activities going on under differentiated instruction. There is also a space beside each sub-item to tally the activities performed

by aides.[89]

Timing Procedures. The observer will record for four ten minute periods. The first observation period should begin simultaneously with the time the school has established as the official school starting time. Begin timing even if the teacher is not prepared to begin instructional or organizational activities.

Once the ten minute observation period has begun, do not reset the stopwatches until the ten minute period is over. A given stopwatch may be started, stopped and started again any number of times during any ten minute period.

At the end of the ten minute observation allow five minutes to record on the observation sheet in minutes and seconds the total time recorded for each of the four categories, add up the score for the number of activities observed in category IV, change record sheets and reset stopwatches.

At least one stopwatch should be running for a category at all times during each ten minute observation.

Timing in categories I and II, Clerical and Routines, refers only to activities carried on by the classroom teacher; therefore one of these stopwatches will be started when the classroom teacher is performing an activity in one of these two categories.

Timing in categories III and IV, Total Group Instruction and

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[89]A sample teacher and aide activity record sheet can be found on page 54 of this chapter.

Differentiated Instruction, focuses upon the activity of the children. If some form of instruction is being carried on by either teacher or aide, one of these watches will be operating. At no time can both of these watches be running.

A stopwatch may be running for the teacher in either category I or category II while a stopwatch is running in either categories III or IV for instructional activity.

Tallying for Aide Functions. A tally mark should be made beside each sub-item for each activity performed by the aide. If an identical activity is carried on by the aide separated by a different activity, it is tallied a second time. This tallying is independent of the timing of teacher or teacher-pupil activity.

Schedule of Observations. Each observer will be supplied with an assignment sheet listing the school, teachers to be observed, school starting time and location of the school. Permission for observations will have been arranged in advance and the teachers informed of the time and purpose of the observation.

Observers should arrive at the school at least fifteen minutes before classes are scheduled to begin. Report to the school office and double check the teacher to be observed. Go to the classroom five or ten minutes early. Introduce yourself to the teacher and determine a mutual and satisfactory place to sit for the observation. Do not discuss the instrument or observation with the teacher.

Children may ask questions; be friendly but do not engage them in

conversation.

Description of Categories

I. Clerical, Housekeeping, Materials Manipulation, Contact with Other Personnel

When the teacher can be observed performing any one of the following activities, the stopwatch for this category should be started.

Usually at desk - preparing lessons, dittos, materials for pupils; correcting and grading papers, recording grades; filing, sorting papers, preparing papers for distribution.

Putting up bulletin board displays, putting work on the blackboard, arranging materials around the room.

Setting up tape recorder, record player, projectors, screens.

This may involve going to another area for equipment and returning with same or directing the activity of another adult or pupil in setting up equipment.

Cleaning or tidying room, arranging chairs or tables, windows and shades, lights, picking up materials or directing another adult or pupil in these activities.

Watching another person teach.

Talking to another person, an aide, custodian, or visitor to the classroom.

II. Conducting Routines

Routines are those activities that are repeated regularly but that are incidental, supportive or preparatory for instructional activities. These activities involve the teacher and pupils with the teacher usually directing the activity.

Opening exercises - salute to flag, singing.

Taking attendance.

Listening to intercom announcements.

Helping children with coats, boots, shoe strings, personal questions and other non-instructional activities.

Supervision of children going to and from lavatory, a snack break or going to another area of the building.

Organizing for new activity can include areas already listed but in addition can include activities such as children moving from one reading group to another, pupils securing materials for new activity or listening to the teacher's directions for new activity.

Collecting and/or distributing papers, books, money, lunch counts, items brought in by children.

The next two categories focus on pupils. The teacher is usually, but may not be directly involved. (See examples)

III. Total Group Instruction

The <u>total class must</u> be involved in the same activity. The teacher or aide may be directing the activity.

Listening to a lecture by teacher, report by student or another person.

Watching and/or listening to film, filmstrip, record or tape.

Discussion - question-answer period with teacher or another pupil.

Taking a test or correcting test.

Reading at desk, group reading, study, seat work with ditto papers.

Singing, playing a game.

On-going activities such as show and tell, date report, weather report, reviewing homework assignments or other group activity.

IV. Differentiated Instruction

The total class cannot all be engaged in the same activity.

Individuals or groups must be working on different activities.

The teacher and/or aide will almost always be involved in some manner. Some activities are listed jointly to signify some types of activities that can be going on simultaneously.

Reading group - seat work with ditto papers, reading assignments.

Seat work - teacher or aide giving individual help to a pupil or small group of children.

Interest or study centers such as the following may be set up around the room where individuals or groups of pupils may go. These must be instructionally related and require some direction and preparation by the teacher.

Listening center - tape or record player.

Language center using flannel boards, magnetic boards, bulletin boards with activities such as phonetics work, word or sentence structures, spelling.

Arithmetic center using boards listed above or other arithmetic materials.

Science center.

Handwriting center.

Library - reading center.

Music center - instruments, recordings.

Arts and crafts center.

Games center.

Planned chalkboard work.

Pupils helping other pupils with flash cards or other materials provided by the teacher.

Observation Examples

The following examples should cover the majority of cases or give

directions on how to record.

1. Beginning of observation period. Teacher tells children to rise, picks child for leader of Pledge of Allegiance. Begin stopwatch for #II, routines.

2. Teacher takes roll, continue stopwatch for #II, routines.

3. A child is asked to go to calendar to record today's date. Stop #II, begin #III, total group instruction.

4. While the date is being recorded, the teacher passes out ditto papers. Continue #III, total group instruction, start #II. (Two simultaneous activities in which teacher is directly involved).

5. Another child is called to go to weather board to record today's weather; teacher continues passing out paper. Continue #III, group instruction and #II, routines. Teacher finishes passing paper. Stop #II, routines. Continue #III, group instruction.

6. Weather report finished, stop #III, total group instruction. Teacher starts giving directions for next activity - reading. Start #II, routines. Continue #II, routines until children are settled. Teacher goes to reading group (one-third of children) while remaining children start working on ditto papers at their seats. (The teacher has two groups in operation). Start #IV, differentiated instruction.

* Special Scoring Under Area #IV

This area is divided into one minute periods. For each one minute period, the observer is to record the number of groups engaged in different instructional activities.

In the example just given, after one minute the observer would record 2 beside the first one minute time period for the two activities - reading group being instructed and children at desks doing seat work. All seat work of this nature is considered one activity unless it can be clearly identified that the seat work is based on different ability

or needs of the children.

7. For 8 minutes the reading and seat work go on. Continue #IV, differentiated instruction. Record a 2 beside time periods one through 8.

8. At end of 8 minutes teacher starts giving directions to change reading groups. One-third of children stop working at desk, get ready to change. Stop #IV, differentiated instruction. Begin #II, routines. When teacher starts teaching, stop #II, routines, begin #IV, differentiated instruction.

9. As teacher teaches the second reading group, two children go to arithmetic center. Continue #IV, differentiated instruction but for next one minute time period record a 3 for the three activities going on. Four children finish seat work and go to science center; for next one minute period record for four activities going on.

10. Assume that an aide is in the room. The teacher is teaching a reading group (one-third of children). The rest of the class is doing seat work but the aide is reading to two children in the corner, or going from child to child giving individual help. Continue #IV, differentiated instruction but record a 3 for reading group - seat work - aide help. If the aide were working on clerical duties, a score of 2 would be recorded in #IV but no time in #I, clerical for the aide. The aide's activities would be tallied beside the appropriate sub-item.

11. The teacher stops teaching the one reading group and prepares to change groups. Begin #II, routines. The teacher assigns the aide to read to a third group, while the remainder continue seat work; teacher goes to listening center and starts setting it up. Stop #II, continue #IV, differentiated instruction, begin #I, clerical. Score 2 in the area #IV for aide working with the reading group and children doing seat work. The #1 was started for the teacher working with audio-visual equipment. A tally would be made for aide working with reading group.

12. Teacher has finished setting up equipment. Stop #I, clerical.

13. Teacher calls a group to come to listening center; the same group stays with the aide; the remainder of children work on seat work. Continue #IV, Differentiated Instruction; record 3 for each one minute period.

14. The group at the listening center is started and the teacher

leaves and takes one child from seat work to work with her; the group stays with aide and remaining children do seat work. Continue #IV, Differentiated Instruction; record 4 for each one minute time period.

15. Above continues for ten minutes. Record four for each one minute time period in #IV, Differentiated Instruction.

16. Teacher stops all activity and starts giving directions for new activity. Stop #IV, Differentiated Instruction; begin #II, routines.

17. Teacher begins arithmetic lesson with total class. Stop #II, routines; begin #III, group instruction. Lesson proceeds for ten minutes, all recorded in area #III, group instruction.

18. Arithmetic lesson ends; aide reads poem to class; teacher watches. Continue #III, group instruction. Start #I, clerical for teacher watching. Continues for five minutes.

19. Teacher begins giving directions to total class for new activity. Stop #III, group instruction. Begin #II, routines.

School _____ Grade _____

Number: Boys _____ Girls _____ Date _____ Time - Period 1 2 3 4

Teacher _____ Check one of the above periods

I. CLERICAL, HOUSEKEEPING, MATERIALS MANIPULATION, CONTACT OTHER PERSONNEL-Time _____

Aide performs - tally

Preparing lessons	_____	Clean or tidy room	_____
Preparing materials for pupils	_____	Set up, take down AV	_____
Put up, take down displays	_____	Converse with other adults	_____
Correcting, grading papers	_____	Watch another teach	_____
Filing, sorting papers	_____		

II. CONDUCTING ROUTINES - Time _____

Aide performs - tally

Opening exercises	_____	Lavatory supervision	_____
Taking attendance	_____	Hall supervision	_____
Distributing materials	_____	Playground supervision	_____
Collecting materials	_____	Taking class to and from activity	_____
Helping children, non-instructional	_____	Listening to intercom	_____
Organizing new activity	_____		

III. INSTRUCTIONAL ACTIVITIES - Total group participation in same activity-Time _____

Aide assisted or performed - tally

Lecture	_____	Test taking or correction	_____
Film, filmstrip, tape showed	_____	Reading or studying	_____
Discussion, question-answer period	_____	Singing, playing game	_____
Pupil presentation or report	_____	On-going activity	_____
Show and tell	_____		

IV. DIFFERENTIATED INSTRUCTION - Individual or group work - Time _____

Aide helps child or children - tally

Reading group	_____	Arithmetic center	_____
Seat work	_____	Science center	_____
Language center		Music center	_____
Phonetic center	_____	Library, reading center	_____
Word or sentence	_____	Arts and crafts	_____
Handwriting	_____	Planned board work	_____

Record below the number of different activities for each one minute time period under Differentiated Instruction.

1	_____	6	_____
2	_____	7	_____
3	_____	8	_____
4	_____	9	_____
5	_____	10	_____

Total Score - Add 1 to 10 _____

FIGURE 2

SAMPLE OF TEACHER AND AIDE ACTIVITY

OBSERVATION RECORD SHEET

ANALYSIS OF THE OBSERVATION INSTRUMENT

From the twenty observations scheduled for the study six observations were randomly selected for paired observations using the following schedule.

Observers	School	
A and B	2-A	with aide
C and D	2	no aide
B and D	10-A	with aide
C and A	10	no aide
A and D	1	no aide
B and C	8	no aide

Each of the four observers made one observation with each of the other three observers. The first listed observer was responsible for signaling the starting and stopping time and his data was used as study data.

QUESTION I.

Can a valid and reliable classroom observation instrument be developed which enables the observer to discriminate among Clerical Activity, Routine Activity, Total Group Instruction and Differentiated Instructional Activity of teachers and/or aides and time the activity of teachers in these four categories?

Validity. An assumption of face validity was initially made in that the items of the test would correctly identify behavior of teacher, aide and children and that the timing of teacher and/or aide related activities represented a true and accurate description of the classroom program. The three observers who participated in the preliminary study

and the four observers in the study itself agreed with this assumption. Based upon the agreement of the seven participants the observation instrument was accepted as a valid description of the classroom program.

Reliability. As shown in Table 1, pages 56 and 57 there were a total of sixteen comparable times for each pair of observers and ninety-six paired times for the six observations. The observers were in complete agreement on fifty-three observations (55.2 per cent) and some disagreement on forty-six observations (44.8 per cent). The total time disagreement for the six observers was thirty-one minutes thirteen seconds, with a range from zero to seven minutes fifteen seconds for an average disagreement of 29.4 seconds for the ninety-six paired times.

TABLE 1

TIME AND WEIGHTED SCORES OF SIX PAIRED OBSERVATIONS USED IN RELIABILITY STUDY

Observers	Category	First Ten Minute Observations		Second Ten Minute Observations		Third Ten Minute Observations		Fourth Ten Minute Observations	
		A	B	A	B	A	B	A	B
School 2-A	I	:25	0	0	0	:15	0	0	0
	II	6:29	7:00	:53	:18	4:48	4:47	2:06	3:26
	III	3:06	3:00	9:07	9:42	5:07	5:25	3:56	2:38
	IV	0	0	0	0	0	0	4:13	4:12
	Score	0	0	0	0	0	0	16	16
Observers		C	D	C	D	C	D	C	D
School 2	I	:21	:22	0	0	0	0	0	0
	II	6:04	6:53	0	0	5:00	2:38	0	0
	III	3:35	2:45	10:00	10:00	5:55	4:29	0	0
	IV	0	0	0	0	0	2:53	10:00	10:00
	Score	0	0	0	0	0	5	30	30

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TABLE 1 (continued)

		First Ten Minute Observation		Second Ten Minute Observations		Third Ten Minute Observations		Fourth Ten Minute Observations	
Observers	Category	B	D	B	D	B	D	B	D
School 10-A	I	0	0	0	0	0	0	:10	:57
	II	6:00	5:41	0	0	0	0	1:00	:10
	III	4:01	4:31	10:00	10:00	:33	:34	0	0
	IV	0	0	0	0	9:27	9:26	8:50	8:53
	Score	0	0	0	0	18	20	18	18
Observers	Category	C	A	C	A	C	A	C	A
School 10	I	3:50	3:31	:22	:19	0	0	0	0
	II	1:10	1:09	2:47	2:35	:52	:57	1:42	1:10
	III	0	0	:10	:18	0	0	0	0
	IV	5:22	6:12	6:43	6:48	10:00	9:58	8:45	10:00
	Score	10	15	21	21	23	25	18	20
Observers	Category	A	D	A	D	A	D	A	D
School 1	I	1:07	0	0	0	0	0	0	0
	II	5:26	10:00	:47	0	1:00	1:10	1:30	:59
	III	3:40	0	0	0	0	0	0	0
	IV	0	0	10:00	10:00	10:00	10:00	10:00	10:00
	Score	0	0	20	20	20	20	20	20
Observers	Category	B	C	B	C	B	C	B	C
School 8	I	:45	:41	0	0	0	0	0	0
	II	9:15	9:19	10:00	10:00	0	0	:15	:10
	III	0	0	0	0	0	0	0	0
	IV	0	0	0	0	10:00	10:00	10:00	10:00
	Score	0	0	0	0	27	30	23	30

Table 2, page 58, gives the total time in Clerical Activities, Routine Activities, Total Group Instruction and Differentiated Instruction that the four paired observers recorded for the six observations. Table 2 also gives the time in agreement recorded by the paired observers for each of the four categories named above and gives the per cent this time represents of the total time in the category.

TABLE 2

PAIRED OBSERVERS TOTAL RECORDED TIME
BY CATEGORIES

	CATEGORY				
	Clerical	Routines	Group Instruction	Differentiated Instruction	Total
Total Time	18:05	134:26	111:32	233:42	492:45
Time In Agreement	10:04	119:37	105:40	228:32	461:12
Per cent of Time In Agreement	77.0%	88.9%	92.2%	97.8%	93.6%

In Clerical Activities the total time in agreement for the six observers represented seventy-seven per cent of the total time recorded in Clerical Activities, in Routines 88.9 per cent, in Total Group Instruction 92.2 per cent and in Differentiated Instruction 97.8 per cent. The total time the six observers recorded for all categories was 492 minutes and forty-five seconds of which there was agreement in timing 461 minutes twelve seconds, or 93.6 per cent of the total time.

On the basis of these percentages of agreement the Teacher and Aide Activity Observation Instrument was accepted as adequate for use in timing Clerical Activities and Routine Activities and as excellent for use in timing Total Group Instruction and Differentiated Instructional activity of teachers and aides.

Table 3, page 59, gives the total time for each pair of observers for the forty minute observation period, the amount of time in agreement and the percentage of the total time which the time in agreement represented.

TABLE 3

PAIRED OBSERVERS RECORDED TIME, TIME IN AGREEMENT AND PER CENT OF IN AGREEMENT

	OBSERVERS					
	A-B	C-D	B-D	C-A	A-D	B-C
Total Time Recorded	80:53	80:55	80:13	84:40	85:39	80:25
Time In Agreement	75:28	72:34	78:00	81:08	83:50	80:12
Per Cent Of Time In Agreement	93.8%	89.7%	96.9%	95.9%	86.4%	99.8%

The percentages of times in agreement were 86.4 per cent for observers A-D, 89.7 per cent for observers C-D, 93.8 per cent for observers A-B, 95.9 per cent for observers C-A, 96.9 per cent for observers B-D and 99.8 per cent for observers B-C.

Based on the above levels of time in agreement the Teacher and Aide Activity Observation Instrument was accepted as a reliable instrument for trained observers to use to time teachers and aides in Clerical Activity, Routine Activity, Total Group Instruction and Differentiated Instruction.

Aide Activities. Two pairs of observers, B-C and B-D, observed teachers who had an aide to assist them. From Table 4, on pages 61 and 62, it can be seen that observers B and C each recorded sixteen activities of the aide over the forty minute observation. There was eighty-seven per cent agreement on fourteen of the sixteen activities. In the first ten minute period observer B recorded the aide as

"preparing material for children" and observer C recorded the aide as "cleaning or tidying room". In the second ten minute period observer B recorded the aide as "filing, sorting papers" and observer C as "correcting - grading papers." The similarity between the activities is obvious. In the third ten minute observation period observer C recorded the aide as "helping children - non-instructional" while observer B omitted this activity. In the fourth ten minute observation period observer B recorded the aide as conducting "on going activity" while observer C omitted this activity.

Observers B and D each recorded ten activities for the aide and agreed on eight of the ten for eighty per cent agreement. In the first ten minute period observer B recorded the aide as involved in "discussion, question-answer period" and observer D as "on-going activity." In the second ten minute period observer B recorded the aide as "distributing materials" while observer D omitted this activity. In the fourth ten minute period observer D recorded the aide as "organizing new activity" while observer B omitted this activity.

Based on the above evidence the Teacher and Aide Activity Observation Instrument was accepted as a reliable instrument for trained observers to use in identifying aide activity among and within the categories of Clerical Activities, Routine Activities, Total Group Instruction and Differentiated Instruction.

TABLE 4

AIDE FUNCTIONS RECORDED BY
PAIRED OBSERVERS

CATEGORY	First Ten Minute Period Observers		First Ten Minute Period Observers	
	B	C	B	D
I	Watching another teach	Watchin another teach.	Preparing material for pupils.	Cleaning or tidying room.
II	Taking opening exercises. Taking attendance. Collecting material. Listening to intercom.	Taking opening exercises. Taking attendance. Collecting materials. Listening to intercom.	None.	None.
III	None.	None.	Leading discussion question-answer period.	Leading On-going activity.
IV	None.	None.	None.	None.
	Second Ten Minute Period		Second Ten Minute Period	
I	Preparing material for pupils. Filing, sorting papers.	Preparing material for pupils Correcting, grading papers.	Watching another teach.	Watching another teach.
II	Taking attendance.	Taking attendance.	Distributing material.	None.
III	None.	None.	Helping children - arithmetic.	Helping children - arithmetic.
IV	None.	None.	None.	None.
	Third Ten Minute Period		Third Ten Minute Period	
I	Preparing material for pupils. Filing, sorting papers.	Preparing material for pupils Filing, sorting papers.	Watching another teach.	Watching another teach.

TABLE 4 (continued)

CATEGORY	Third Ten Minute Period Observers		Third Ten Minute Period Observers	
	B	C	B	D
II	Conversing with another adult. Distributing material.	Conversing with another adult. Distributing material. Helping children - non-instructional.	None.	None.
III	None.	None.	Helping children - arithmetic.	Helping children-arithmetic.
IV	None.	None.	Arithmetic center.	Arithmetic center.
	Fourth Ten Minute Period		Fourth Ten Minute Period	
I	Preparing material for pupils.	Preparing material for pupils.	Watching another teach.	Watching another teach.
II	Organizing new activity.	None.	None.	Organizing new activity.
III	None.	None.	None.	None.
IV	Language center Word or sentence. Listening center.	Language center. Word or sentence. Listening center.	Arithmetic center.	Arithmetic center.

On the basis of the preceeding information the answer to research question I is that the Teacher and Aide Activity Observation Instrument is a valid and reliable classroom observation instrument which enables the observer to discriminate among Clerical Activity, Routine Activity, Total Group Instruction, Differentiated Instructional Activity of teachers and/or aides and time the activity of teachers in these four categories.

CHAPTER IV

PROCEDURES

This chapter is divided into two main sections. The first section:

1. Describes the selection of schools and their geographic locations within Baltimore County, Maryland.
2. Describes the process used to choose teachers with aides and the selection of groups of children and teachers without aides.
3. Compares the two sets of schools on the following criteria:
   a. Length of teaching experience of teachers in the study.
   b. School enrollment by total school, total first grade and by experimental and control classes.
   c. Occupational status of principal wage earners in the homes of the children in the study.
4. Compares the two sets of schools on second and fourth grade California Test of Mental Ability.
5. Compares the two sets of schools on third and sixth grade Iowa Test of Basic Skills - Reading Sub-section.
6. Describes the procedures used to collect observation data.

The second section:

Describes the nature of the data and the statistical procedures used to test Research Questions II, III, IV, V and the related statistical hypotheses.[90]

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[90]Research question I covering procedures and statistical operations dealing with development of the observation instrument are treated separately in Chapter III, pages 40 to 62.

SECTION I

Procedures For Selecting Schools, Teachers and Classes

Selection of Schools. The Federally funded Title I "Education Development Project" was the only program in the Baltimore County school system which assigned full time aides to individual classroom teachers, hence teachers with aides had to be selected from schools receiving federal help. During the 1968-69 school year eighteen elementary schools were participating in the "Education Development Project." Sixteen of these schools were located in the twelth and fifteenth election districts of Baltimore County. In these sixteen schools there were seventeen first grade teachers with full time aides. Two teachers had been observed in preliminary studies and were excluded from consideration. Ten of the remaining fourteen schools and first grade teachers were randomly chosen as subjects with the remaining four schools and teachers held in reserve.

From the total of thirty-three elementary schools in the twelth and fifteenth election districts, seventeen were not in the "Educational Development Project" and had no aides. Ten of these seventeen schools were randomly chosen to be included as control schools for purposes of this study.

Classroom Teacher Selection. The selection of classroom teachers with aides was limited to those first grade teachers in the "Educational Development Project" who had been assigned a full time aide. The children in these classes were those with the lowest expectations in

reading as indicated by the Lee-Clark Reading Readiness Test.

In the ten schools without aides, nine used the Lee-Clark test to group the first grade children. One school used the Lee-Clark test to group the first grade children and in addition grouped them according to sex. In the ten schools without aides the classes of children scoring lowest on the Lee-Clark test were identified and the teachers selected for inclusion in this study.

The principals of the twenty schools were contacted by telephone or by personal visit and the purpose and needs of the study explained. A followup letter was written to the principals identifying the teacher and class and asking the principal's and teacher's permission to observe.[91] All twenty principals and teachers agreed to participate in the study.

Comparability of Two Sets of Schools on Teacher Experience, Enrollment, Socio-economic Factors, Pupil Achievement

Teaching Experience of the Twenty Teachers in the Study. All twenty teachers were rated as satisfactory or better by the local school administrators and were full certified according to Maryland State Department of Education requirements.

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[91]A copy of the letter to the school principals can be found in Appendix G, p. 133.

The years of teaching experience were as follows:

Teachers With Aides		Teachers Without Aides	
Years Experience	Number of Teachers	Years Experience	Number of Teachers
1	1	1	1
2	1	2	1
4	1	3	1
5	2	6	2
6	2	7	1
9	1	10	1
20	1	11	1
25	1	14	1
		18	1
Total Yrs. Exp. 83	10	Total Yrs. Exp. 78	10

The average years of experience for teachers with aides was 8.3 years with a range of one year to twenty-five years. The average years of experience for teachers without aides was 7.8 years with a range of one to eighteen years. The median years experience for teachers with aides was 7.5 years and for teachers without aides 8.5 years.

The Mann-Whitney U was utilized to compare the distribution of the years of experience of teachers with aides and teachers without aides.[92] This analysis produced a U = 45 which indicates no significant difference at the .05 level.

Aides' Experience. Five of the aides in the study were completing their first full year. The remaining five were completing their second full year at the same school.

School Enrollment. The school enrollment figures for the ten

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[92]Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, (New York, McGraw-Hill Book Co., Inc., 1956) pp. 116-126.

TABLE 5

SCHOOL ENROLLMENT FOR TEN SCHOOLS WITH AIDES
AND TEN SCHOOLS WITHOUT AIDES

SCHOOLS WITH AIDES						SCHOOLS WITHOUT AIDES					
School	Total School	First Grade	Class in Study			School	Total School	First Grade	Class in Study		
			Boys	Girls	Total				Boys	Girls	Total
1-A	328	44	9	12	21	1	898	150	10	14	24
2-A	274	46	10	9	19	2	954	157	12	12	24
3-A	905	152	12	15	27	3	705	124	12	7	19
4-A	748	122	9	13	22	4	807	95	13	9	22
5-A	745	121	13	6	19	5	146	28	16	13	29
6-A	646	90	13	7	20	6	688	102	9	12	21
7-A	629	118	14	7	21	7	512	102	10	7	17
8-A	450	96	21	9	30	8	592	103	17	7	26
9-A	385	55	14	14	28	9	654	110	17	8	25
10-A	506	70	14	8	22	10	561	92	21	0	21
Total	5616	914	129	100	229	Total	6517	1063	139	89	228

schools with aides and the ten schools without aides are shown in Table 5, page 67. A comparison of average enrollments for the two sets shows:

	Average Enrollments		
	Total School	Total First Grade	Class In Study
With Aides	561.6	91.4	22.9
Without Aides	651.7	106.3	22.8

The ten schools without aides ran larger in total school enrollments and total first grade enrollment. The enrollment for the classes utilized in the study were almost identical.

The distributions of enrollments for the two sets of schools were compared utilizing the Mann-Whitney U. The comparison of the total school enrollment produced a U = 36, total first grade enrollment a U = 47 and for project class enrollment a U = 49, all of which indicate no significant difference in distribution of enrollment at the .05 level.

Occupational Status of Principal Wage Earners of Children In The Study. Each school was asked to supply the occupation of the principal wage earner in the homes of children in this study. These occupations were classified according to the following United States Department of Labor categories.[93]

Professional Administrative	Technical	Clerical
Accountant	Engineer	Office Worker
Auditor	Draftsman	Salesman
Attorney	Supervisor - Plant	Biller
Manager	Foreman	Stenographer
Job Analyst	Toolmaker	Secretary
Director of Personnel	Inspector - Plant	Keypunch Operator
Chemist		Switchboard Operator
Engineer		
Teacher		
Minister		
Physician		

Maintenance	Custodial	Miscellaneous[94]
Carpenter	Packer	Unemployed
Bricklayer	Watchman	Welfare
Plumber	Laborer	Divorced
Sheet Metal Worker	Receiving Clerk	Unknown
Machine Operator		Deceased
Truck Driver		Foster Home
Printer		Retired
Fireman		
Policeman		
Cook		
Farmer		
Welder		

An examination of Table 6 on page 70 and of Figure 3 on page 71 reveals that the majority of the wage earners in the two sets of schools

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[93]United States Department of Labor, Area Wage Survey - The Baltimore Maryland Metropolitan Area, (Washington, D.C., Bulletin 1530-30, United States Government Printing Office, November, 1966).

[94]This category was added by the investigator.

fall into the maintenance and custodial categories. The classes with aides had sixty-seven wage earners in maintenance and ninety-one in custodial, a total of 158 out of 229 or 68.9 per cent. The classes without aides had ninety-four wage earners in maintenance and sixty-four in custodial, a total of 158 out of 228 or 69.3 per cent.

The aide classes had twenty wage earners in technical occupations and twenty-five in clerical occupations compared to the non-aide classes of twenty-three technical and twenty-five clerical.

In Professional-Administrative occupations the aide classes had four persons and the non-aide classes thirteen. One non-aide class had eight persons in this category which accounted for much of the difference between the two groups.

In the miscellaneous category the classes with aides had thirteen unknown occupations, three welfare, three foster children, two deceased and one retired; for a total of twenty-two. The classes without aides had four unknown, two welfare, two divorced and one foster child for a total of nine.

The principal wage earners of the children in classes with aides, as a group, have occupations in categories slightly lower than principal wage earners of children in classes without aides as indicated by the twenty-seven more custodial positions, and twenty-eight fewer technical and nine fewer professional positions. The differences in occupational status are small enough for the two groups to be considered as coming from similar populations.

TABLE 6

OCCUPATION BY SCHOOL OF PRINCIPAL WAGE EARNERS OF CHILDREN IN CLASSES WITH AIDES AND CLASSES WITHOUT AIDES

Schools With Aides	Professional Administrative	Categories				
		Technical	Clerical	Maintenance	Custodial	Misc.
1-A		2		9	7	3
2-A		1	5	7	4	2
3-A			1	8	13	5
4-A		1	2	3	15	1
5-A		6	4	7	1	1
6-A		3	3	5	8	1
7-A		3	6	5	5	2
8-A	1	3	2	13	10	1
9-A			2	3	18	5
10-A	3	1		7	10	1
TOTALS	4	20	25	67	91	22
Schools Without Aides						
1	1	2		14	7	
2	1	4	4	9	4	2
3		2	2	4	10	1
4	1	2	4	12	3	
5		3	5	10	8	3
6	1	2	4	11	2	1
7		2	2	5	7	1
8	8	2		4	12	
9		2	1	18	4	
10	1	2	3	7	7	1
TOTALS	13	23	25	94	64	9

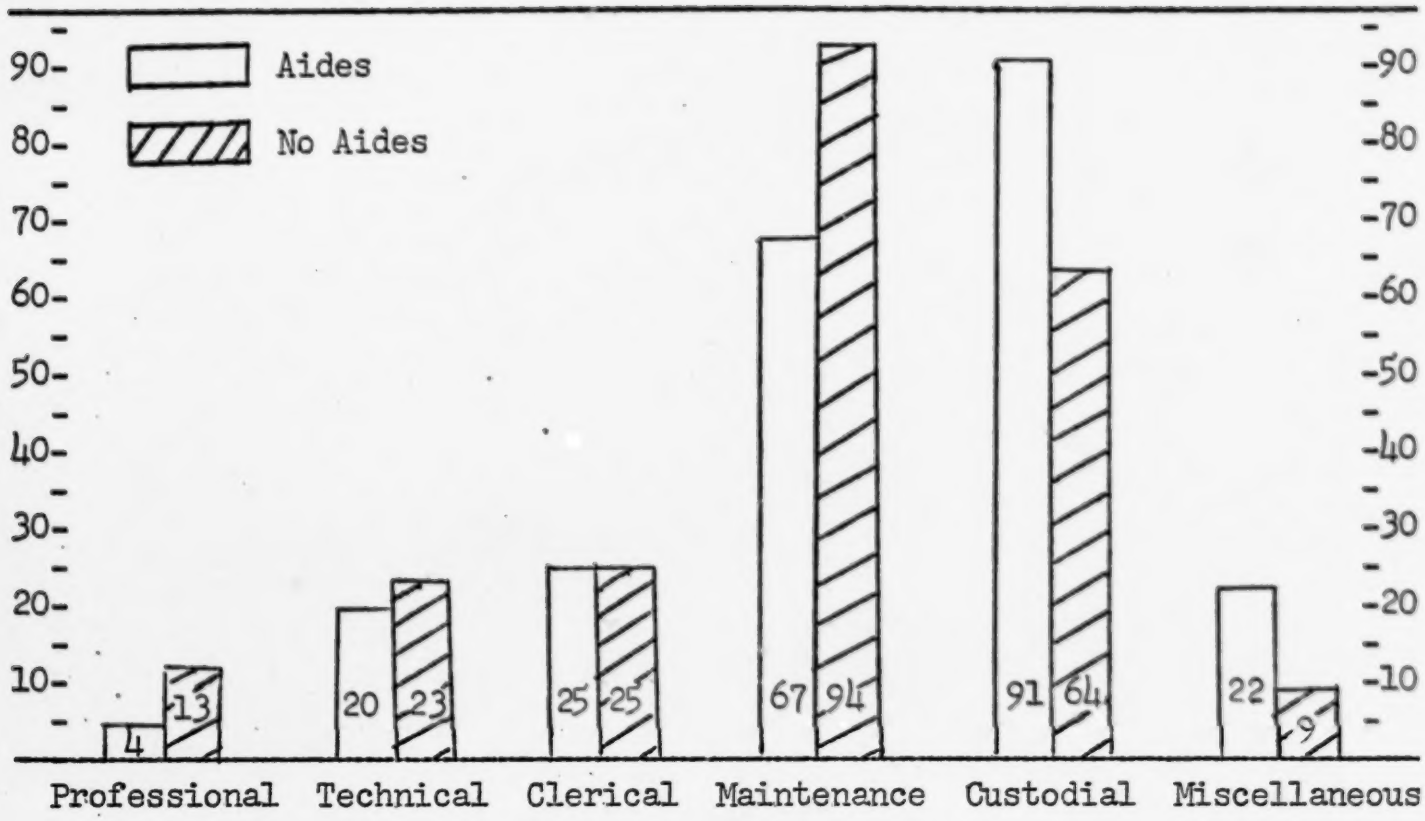

FIGURE 3

OCCUPATIONAL STATUS OF PRINCIPAL WAGE EARNERS OF CHILDREN IN TEN SCHOOLS WITH AIDES AND TEN SCHOOLS WITHOUT AIDES

Comparison of Second and Fourth Grade Scores in the Two Sets of Schools on California Test of Mental Ability. The Baltimore County schools administer the California Test of Mental Ability (CTMA) to all second and fourth grade children. The results of this test for the second and fourth grade children in the ten schools with aides and ten schools without aides are shown in Table 7, page 72.

The 916 second grade children in the ten schools with aides had a mean score of 93.326 and a standard deviation of 10.185 on the CTMA. The 1143 second grade children in the schools without aides had a CTMA mean score of 93.608 and standard deviation of 10.422. Homogeneity of variance for the two groups was accepted at .05 level and the mean

TABLE 7

COMPARISON OF SECOND AND FOURTH GRADE PUPILS IN THE TWO GROUPS OF SCHOOLS ON THE CALIFORNIA TEST OF MENTAL ABILITY*

	Mean	Std. Dev.	N	Homogeneity of Variance F. Ratio	Homogeneity of Variance Sig. at .05 level	Mean Diff.	df	t	Sig. at .05 level
Grade 2									
Schools with Aides	93.326	10.185	916						
				1.047	No	.282	2057	.276	No
Schools No Aides	93.608	10.422	1143						
Grade 4									
Schools with Aides	122.170	15.790	947						
				1.355	Yes	.521	59**	.673	No
Schools No Aides	121.650	18.390	1007						

*Data supplied by Baltimore County Public Schools Office of Testing
**corrected degrees of freedom using Behrems-Fisher Formula

difference of .282 was not significant at .05 level.

In grade four the 947 children in the ten schools with aides had a CTMA mean score of 122.170 and standard deviation of 15.790. The 1007 fourth grade pupils in the ten schools without aides had a mean of 121.650 and standard deviation of 18.39. The difference in variance was significant on the .05 level. The CTMA mean difference of .521 was tested using the Behrems-Fisher correction for degrees of freedom and

this mean difference was not found to be significant at .05 level.[95]

Comparison of Third and Sixth Grade Scores in the Two Sets of Schools on Iowa Test of Basic Skills. The Baltimore County schools administer the Iowa Test of Basic Skills (ITBS) to all third and sixth grade children. The results of the ITBS reading sub-test for the third and sixth grade children in the ten schools with aides and the ten schools without aides are shown in Table 8, page 74.

In the third grade the 885 children in the ten schools with aides had an ITBS mean score of 35.958 and standard deviation of 19.700. The 1047 children in the ten schools without aides had an ITBS mean score of 37.185 and standard deviation of 11.620. The difference in variances was significant at .05 level. The ITBS mean difference of 1.227 was tested using Behrems-Fisher correction for degrees of freedom and this mean difference was not significant at .05 level.

In the sixth grade the 859 children in the schools with aides had an ITBS mean score of 59.788 and standard deviation of 18.460. The 1045 children in schools without aides had an ITBS mean score of 60.345 and standard deviation of 14.540. Homogeneity of variance for the two groups was accepted at .05 level and the mean difference between groups of .557 was not significant at .05 level.

Collection of Observation Data. The collection of observation

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[95]Behrems-Fisher problem as stated in E. L. Lehman, Testing Statistical Hypotheses, (New York, John Wiley and Sons, Inc., 1959), p. 230.

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TABLE 8

COMPARISON OF THE THIRD AND SIXTH GRADE PUPILS
IN THE TWO GROUPS OF SCHOOLS ON THE
IOWA TEST OF BASIC SKILLS
READING SUB SECTION*

	Mean	Std. Dev.	N	Homogeneity of Variance		Mean Diff.	df	t	Sig. at .05 level
				F. Ratio	Sig. at .05 level				
Grade 3									
Schools with Aides	35.958	19.700	885						
Schools No Aides	37.185	11.680	1047	2.861	Yes	1.227	127	1.621	No
Grade 6									
Schools with Aides	59.788	18.460	859						
Schools No Aides	60.345	14.540	1045	1.005	No	.557	39	.653	No

*Data supplied by Baltimore County Public Schools Office of Testing

data from the ten classes with aides and ten classes without aides was arbitrarily set for the weeks of May 12 to 16 and May 19 to 22, 1969. Each class was assigned a number; 1 to 10 for the classes without aides and 1A to 10A for the classes with aides. A drawing was made to determine the order of observation. The first numbers drawn were scheduled on the first day and so forth. The observation dates for the twenty classes were cleared with the school administrator and classroom

teacher. Two teachers, 3A and 8A, requested a change in the original time scheduled for the observation.

Assignment of the four observers was made by systematically scheduling the letters A, B, C, D to the appropriate number of aide and non-aide classes and then having the observers draw a letter. The final observation schedule was as follows:

Date	School	Starting Time	Observer
May 12	4	8:45 A.M.	B
	3	8:45 A.M.	C
	4A	8:45 A.M.	D
May 13	3A	8:45 A.M.	A
May 14	2A	8:45 A.M.	A-B
	2	8:45 A.M.	C-D
May 15	6A	8:45 A.M.	C
	6	8:45 A.M.	D
May 16	10A	8:45 A.M.	B-D
	10	8:45 A.M.	C-A
May 19	1A	9:00 A.M.	C
	1	8:45 A.M.	A-D
May 20	8	9:00 A.M.	B-C
May 21	9A	8:30 A.M.	A
	9	8:00 A.M.	B
	7A	8:45 A.M.	C
	7	9:00 A.M.	D
May 22	5A	8:45 A.M.	B

Date	School	Starting Time	Observer
May 22	5	8:30 A.M.	A
May 23	8A	8:45 A.M.	A

Observer A was scheduled for four observations with classes with aides and for three without aides; observer B three classes with aides and three without aides; observer C three classes with aides and four without aides; observer D two classes with aides and four classes without aides.

All observations by the four observers were conducted on the date scheduled.

SECTION II

Nature of Data and Statistical Procedures

Each teacher and his class was observed for four ten minute periods by a trained observer using the classroom observation instrument developed by the investigator. The total observation time for each teacher was 40 minutes. All observations were made during the first hour of instructional time of the school day.

QUESTION II

Will teachers with full time aides devote more time to instructional activities and provide more individual or small group instruction for children than teachers who do not have aides?

Hypothesis 1. There is no difference between the ranking of times in Clerical Activities for the ten teachers with aides and ten

teachers without aides.

The teachers were timed in Clerical Activities when they were observed preparing lessons, preparing materials for pupils, putting up or taking down displays, correcting or grading papers, filing or sorting papers, cleaning or tidying the room, setting up or taking down audio-visual equipment, watching another person teach or conversing with another adult.

The ranking of times in Clerical Activities for the ten teachers with aides and ten teachers without aides were compared for each ten minute observation period and for the total forty minute observation period using the Mann-Whitney U.[96]

Hypothesis 2. There is no difference between the ranking of times in Routine Activities for the ten teachers with aides and the ten teachers without aides.

Teachers were timed in Routine Activities when they were performing activities such as conducting opening exercises, taking attendance, distributing or collecting materials, helping children with non-instructional activities, organizing class for a new activity and listening to the intercom system.

The ranking of times in Routine Activities for the ten teachers with aides and ten teachers without aides were compared for each ten minute observation period and for the total forty minute observation

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[96]Siegel, loc. cit.

period using the Mann-Whitney U.[97]

Hypothesis 3. There is no difference between the distribution of times in Total Group Instruction for the ten teachers with aides and the ten teachers without aides.

The time in this category is the time the total class of pupils participated in the same instructional activity such as a lecture, film, filmstrip, group discussion, question and answer period, pupil presentation or report, show and tell, test taking or correction, reading or studying, singing, playing a game or carrying on a group on-going activity. The teacher and/or aide may have been in charge of the activity.

The ranking of times in Total Group Instruction for the ten teachers with aides and ten teachers without aides were compared for each ten minute observation period and for the total forty minute observation period using the Mann-Whitney U.[98]

Hypothesis 4. There is no difference between the ranking of times in Differentiated Instruction for the ten teachers with aides and ten teachers without aides.

The time in this area reflects the periods during which more than one instructional activity were being carried on. These activities might include any number or combination of the following types of instructional

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[97] Ibid.

[98] Ibid.

activities; reading group, seat work, planned board work, aide working with a child or children, and children working at instructional centers such as language, handwriting, arithmetic, science, music, library reading, arts and crafts and listening center.

The ranking of times in Differentiated Instruction Activity for the ten teachers with aides and ten teachers without aides were compared for each ten minute observation period and for the total forty minute observation period using the Mann-Whitney U.[99]

Hypothesis 5. There is no difference between the ranking of ratings given times in Differentiated Instruction for the ten teachers with aides and ten teachers without aides.

A rating was given Differentiated Instruction time by multiplying each minute of time by the number of different instructional activities organized and carried on by the teacher and/or aide. For scoring purposes time of zero to twenty-nine seconds was dropped and time from thirty to fifty-nine seconds counted as a full minute.

The ranking of ratings given differentiated instruction time for the ten teachers with aides and the ten teachers without aides were compared for each ten minute period and for the total forty minute period using the Mann-Whitney U.[100]

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[99] Ibid.

[100] Ibid.

QUESTION III

Will the activities performed by aides have some pattern and logical relationship to the time teachers with aides will spend in non-instructional and instructionally related activities?

Hypothesis 6. There is no relationship between the activities performed by aides and the time teachers spend in Clerical, Routine, Total Group Instruction and Differentiated Instruction.

Each of the four categories on the observation record sheet contained a list of possible activities which might be performed by aides. A tally was made for each performance of an activity by the aide. Only the classroom teacher was being timed and there was no attempt to time the duration of activities that were performed by aides. The frequency count of aide activity therefore will not be representative of the amount of time the aide spent on the activity.

The analysis of aide activity was performed by first listing each aide's activity, by category, for each of the four ten minute observation periods. A tally of all aide activities was then made and the percentage of activity in Clerical, Routines, Total Group Instruction and Differentiated Instruction was computed. The degree of commonality of aide activity was examined by listing activities that were performed by a majority of the aides. To examine the relationship of aide activity to the way the teachers spend their time the ranking of aide tallies in each category was compared to the ranking of teacher time in the same

category using the Kendall Rank Correlation Coefficient.[101]

QUESTION IV

Will the addition of aides to the classroom have any effect upon pupil achievement as measured by standardized tests?

Beginning of School Year

Hypothesis 6. There is no difference in the Lee-Clark Reading Readiness means between pupils in classes with and without aides.

Hypothesis 7. There is no difference in the Lee-Clark Reading Readiness means between boys and girls across treatment groups.

Pupil achievement was measured by the Lee-Clark Reading Readiness Test which had been administered to all first grade children in the study in the fall of 1969.[102]

Analysis of the data was performed on two dimensions, between experimental and control groups and by sex across treatment groups. Homogeneity of variance was tested using the F ratio and differences between means were tested using the t distribution.[103]

End of the School Year

Hypothesis 8. There is no difference in the Metropolitan

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[101] Ibid., pp. 213-223.

[102] Thomas C. Barrett and Coleman Morrison, "Lee-Clark Reading Test 1958 Revision," Sixth Mental Measurement Yearbook, editor, Oscar K. Buros, (New Jersey, The Gryphen Press, 1965), pp. 795-796.

[103] Wilfred J. Dixon and Frank J. Massey, Jr., Introduction to Statistical Analysis, (New York, McGraw-Hill Book Co., Inc., 1957).

Achievement test adjusted means between pupils in classes with aides and classes without aides (Lee-Clark scores as covariate).

Hypothesis 9. There is no difference in the Metropolitan Achievement test adjusted means between boys and girls across treatment groups. (Lee-Clark scores as covariate).

Pupil achievement was measured by the Metropolitan Achievement Test which was administered to the first grade pupils during the period from May 15, 1969 to June 13, 1969.[104] The Metropolitan Achievement Test provides subscores on Word Knowledge, Word Discrimination and Reading. Analysis of data was performed for each subscore.

A two by two analysis of covariance was performed on the three Metropolitan Achievement sub-test scores using Lee-Clark total scores as the covariate.[105] This analysis was performed on two dimensions: by treatment - between pupils in class with aides and pupils in classes without aides, and by sex - between boys and girls across treatment groups..

QUESTION V

Will there be a positive relationship between the time teachers with or without aides spend in instructionally related activities and

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[104]H. Alan Robinson, "Metropolitan Achievement Tests," Sixth Mental Measurement Yearbook, Editors, Oscar K. Buros (New Jersey, The Gryphon Press, 1965), pp. 797-798.

[105]E. L. Lehman; Testing Statistical Hypotheses, (New York, John Wiley and Sons, 1959), pp. 242-256; Janet D. Elashoff, "Analysis of Covariance: A Delicate Instrument," American Education Research Journal, (6:383-401, May, 1969).

pupil achievement?

Hypothesis 10. For classes with or without aides there will be no relationship between the ranking of classes on Metropolitan Achievement reading sub-test means and:

a. Teacher's ranking on time in Clerical Activity.

b. Teacher's ranking on time in Routine Activity.

c. Teacher's ranking on time in Total Group Instruction.

d. Teacher's ranking on time in Differentiated Instruction.

e. Teacher's ranking on time in rating given Differentiated Instruction.

Class means were computed for the Reading sub-test of the Metropolitan Achievement test. These class means were given a rank and compared to the teachers' ranking on time in Clerical Activity, Routine Activity, Total Group Instruction, Differentiated Instruction, and rating given Differentiated Instruction using the Kendall Rank Correlation Coefficient to determine degree of relationship.[106]

The significance level of .05 was selected for acceptance or rejection of the hypotheses of this study.

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[106]Siegel, op. cit., pp. 213-223.

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CHAPTER V

RESULTS OF THE STUDY

This chapter provides an analysis of the results of the study. Each of the four research questions is restated along with the hypotheses relating to the question and the data supporting the acceptance or rejection of a given hypothesis.[107]

QUESTION II

Will teachers with full time aides devote more time to Instructional Activities and provide more individual or small group instruction for children than teachers who do not have aides?

Hypothesis 1. There is no difference between the ranking of times in Clerical Activities for the ten teachers with aides and ten teachers without aides.

The time that the teachers with and without aides spent in Clerical Activities for each of the four ten minute observation periods is shown in Table 9, page 86. The Mann-Whitney U comparison for two sets of times produced the following data:

First ten minute period U = 30.5

Total forty minute period U = 33

A U of 50 would indicate perfect agreement in the distribution

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[107]Research question I covering the validity and reliability of the observation instrument is treated separately in Chapter III, pp. 55-62.

of times between the two sets of teachers. The Mann-Whitney U was not computed for the second, third and fourth observation periods because of the large number of zero times recorded in each of these periods.

On the basis of the Mann-Whitney U comparisons the hypothesis that there is no difference between the two sets of teachers in ranking of time spent in Clerical Activities was accepted at the .05 level.

The total and average time in Clerical Activities for each set of teachers were as follows:

		First Ten Minute Period	Second Ten Minute Period	Third Ten Minute Period	Fourth Ten Minute Period	Total Forty Minute Period
Aides						
	Total Time	19:11	13:18	2:30	1:37	36:36
	Average	1:55.1	1:19.8	:15	:09.7	3:39.6
No Aides						
	Total Time	10:16	:22	0	:31	11:09
	Average	1:01.6	:02.2	0	:03.1	1:06.9

The pattern of behavior was similar for both groups with the largest amount of time in Clerical Activity occurring in the first ten minute period and decreasing to the fourth period. Teachers with aides consistently spent more time in Clerical Activity than teachers without aides.

From Table 9, page 86, it can be seen that teacher 1A with an aide had a total of nineteen minutes and fifty-one seconds in clerical activity or 54 per cent of that group's total of thirty-six minutes thirty-six seconds. Three teachers with an aide 1A, 6A and 8A had

TABLE 9

TIME TEN TEACHERS WITH AIDES AND TEN TEACHERS
WITHOUT AIDES SPENT IN CLERICAL ACTIVITIES

School and Teacher Number	First Ten Minute Period		Second Ten Minute Period		Third Ten Minute Period		Fourth Ten Minute Period		Total Forty Minute Period	
	Aides	No Aides	Aides	No Aides	Aides	No Aides	Aides	No Aides	Aides	No Aides
1	9:04	1:07	6:55	0	2:15	0	1:37	0	19:51	1:07
2	:25	:21	0	0	:15	0	0	0	:40	:21
3	:09	4:14	0	0	0	0	0	0	:09	4:14
4	0	0	0	0	0	0	0	0	0	0
5	1:06	:08	:24	0	0	0	0	:31	1:30	:39
6	:36	0	5:40	0	0	0	0	0	6:16	0
7	0	0	0	0	0	0	0	0	0	0
8	6:55	:25	0	0	0	0	0	0	6:55	:25
9	:42	:11	:19	0	0	0	0	0	1:01	:11
10	:14	3:50	0	:22	0	0	0	0	:14	4:12
Total	19:11	10:16	13:18	:22	2:30	0	1:37	:31	36:36	11:09
Average	1:55.1	1:01.6	1:19.8	:02.2	:15	0	:09.7	:03.1	3:39.6	1:06.9

thirty-three minutes and two seconds in clerical activities or ninety per cent of the total time that all teachers with aides spent in clerical activities. For the teachers without aides three teachers 1, 3 and 10 accounted for nine minutes and thirty-three seconds or eighty-six per cent of the total time that all teachers without aides spent in Clerical Activities. Excluding three teachers from each group; the remaining seven teachers with aides had a total of three minutes and thirty-four seconds in Clerical Activities and the seven teachers without aides had a total of one minute and thirty-six seconds. The average time per teacher becomes 30.5 seconds and 13.7 seconds respectively; an almost inconsequential amount of time.

Hypothesis 2. There is no difference between the ranking of times in Routine Activity for the ten teachers with aides and the ten teachers without aides.

The time that the teachers spent in routines for each of the four ten minute observation periods is shown in Table 10, page 88. The Mann-Whitney U for the five sets of times produced the following data.

First ten minute observation period	U = 44
Second ten minute observation period	U = 48
Third ten minute observation period	U = 40
Fourth ten minute observation period	U = 49.5
Total forty minute observation period	U = 39

A U = 50 would indicate perfect agreement in the distribution of time between the two sets of teachers. On the basis of these five comparisons the hypothesis that there is no difference between the two

TABLE 10

TIME TEN TEACHERS WITH AND WITHOUT AIDES
SPENT IN ROUTINE ACTIVITIES

School and Teacher Number	First Ten Minute Period		Second Ten Minute Period		Third Ten Minute Period		Fourth Ten Minute Period		Total Forty Minute Period	
	Aides	No Aides	Aides	No Aides	Aides	No Aides	Aides	No Aides	Aides	No Aides
1	1:05	5:26	2:00	:47	0	1:00	0	1:30	3:05	8:43
2	6:29	5:56	:53	0	4:48	5:00	2:06	0	14:16	10:56
3	1:08	4:46	:34	0	3:06	:53	:20	:48	5:08	6:29
4	3:50	10:00	0	10:00	0	10:00	0	0	3:50	30:00
5	8:54	6:37	1:33	:27	0	6:11	0	4:49	10:27	18:04
6	9:25	5:43	2:25	0	1:24	0	0	0	13:14	5:43
7	7:14	1:24	0	1:20	0	:46	0	0	7:14	3:30
8	3:05	9:15	3:01	10:00	1:14	0	:41	:15	8:01	19:30
9	6:35	9:45	0	0	1:32	:43	1:54	0	10:01	10:28
10	6:00	1:10	0	2:47	0	:52	1:00	1:42	7:00	6:31
Total	53:45	60:02	10:26	25:21	12:04	25:27	6:01	9:04	82:16	119:51
Average	5:22.5	6:00.2	1:02.6	2:32.1	1:12.4	2:32.7	:36.1	:54.4	8:13.6	11:59.4

sets of teachers in ranking of time spent in Routine Activities was accepted at the .05 level.

The total and average times in Routine Activities for each set of teachers were as follows:

		First Ten Minute Period	Second Ten Minute Period	Third Ten Minute Period	Fourth Ten Minute Period	Total Forty Minute Period
Aides						
	Total Time	53:45	10:26	12:04	6:01	83:16
	Average	5:22.5	1:02.6	1:12.4	:36.1	8:13.6
Non-Aide						
	Total Time	60:02	25:24	25:27	9:04	119:54
	Average	6:00.2	2:32.1	2:32.7	:54.4	11:59.4

Teachers without aides consistently spent more time conducting Routine Activities than did teachers with aides. Both groups spent less time in routines from the first to the last observation period. The time spent in routines in the first ten minute period accounted for more than 50 per cent of the total amount of time for both groups.

All twenty teachers spent some time conducting routines. Table 10, page 88, gives the time for each teacher for each observation period. The range of time in routines for teachers with aides was from three minutes and five seconds to fourteen minutes and sixteen seconds with an average of eight minutes and 13.6 seconds. Teachers without aides ranged from three minutes and thirty seconds to thirty minutes with an average of eleven minutes and 59.4 seconds.

Four teachers with aides, 2A, 5A, 6A and 9A each had over ten

minutes in routines for a total of forty-seven minutes and fifty-eight seconds or 58 per cent of their group's total time. Five teachers without aides, 2, 4, 5, 8 and 10, each had over ten minutes in routines for a total of eighty-eight minutes and fifty-eight seconds or 74 per cent of their group's total time.

Five of the teachers with aides had no time in routines in the third or fourth observation period while two teachers without aides had no time in routines in the third observation period and five had no time in routines in the fourth observation period.

Seven teachers without aides, 1, 2, 3, 6, 7, 9 and 10, and six teachers with aides, 1A, 3A, 4A, 7A, 8A and 10A, each spent less time in routines than the average for their group.

Hypothesis 3. There is no difference between the rankings of times in Total Group Instruction for the ten teachers with aides and the ten teachers without aides.

The time that the ten teachers with and without aides spent in Total Group Instruction is given in Table 11, page 91. Because of the large number of zero scores for the second, third and fourth ten minute observation periods the Mann-Whitney U comparison was made for the first ten minute observation period and for the total forty minute period. The Mann-Whitney U's for the two comparisons were:

First ten minute observation period U = 45.5

Total forty minute observation period U = 31.5

On the basis of these two comparisons the hypothesis that there is no difference between the two sets of teachers in ranking of time spent

TABLE 11

TIME TEN TEACHERS WITH AIDES AND TEN TEACHERS WITHOUT AIDES SPENT IN TOTAL GROUP INSTRUCTION

School and Teacher Number	First Ten Minute Period		Second Ten Minute Period		Third Ten Minute Period		Fourth Ten Minute Period		Total Forty Minute Period	
	Aides	No Aides	Aides	No Aides	Aides	No Aides	Aides	No Aides	Aides	No Aides
1	6:23	3:40	8:14	0	10:00	0	10:00	0	34:37	3:40
2	3:06	3:35	9:07	10:00	5:07	5:55	3:56	0	21:16	19:30
3	2:40	3:05	0	0	0	0	0	0	2:40	3:05
4	6:10	0	0	0	0	0	0	0	6:10	0
5	0	0	0	0	0	0	0	0	0	0
6	0	4:17	6:40	4:59	0	0	0	0	6:40	9:16
7	:55	8:36	0	0	0	0	0	0	:55	8:36
8	0	0	6:00	0	0	0	0	0	6:00	0
9	2:48	0	0	0	:35	0	0	0	3:23	0
10	3:56	0	10:00	0	:23	0	0	0	14:19	0
Total	25:58	28:13	40:01	14:59	16:05	5:55	13:56	0	96:00	44:07
Average	2:35.8	2:19.3	4:00.1	1:29.9	1:36.5	:35.5	1:23.6	0	9:36	4:24.7

in Total Group Instruction was accepted at the .05 level.

The total and average times in Total Group Instruction for each set of teachers were as follows:

		First Ten Minute Period	Second Ten Minute Period	Third Ten Minute Period	Fourth Ten Minute Period	Total Forty Minute Period
Aides	Total Time	25:58	40:01	16:05	13:56	96:00
	Average	2:35.8	4:00.1	1:36.5	1:23.6	9:36
Non-Aide	Total Time	23:13	14:59	5:55	0	44:07
	Average	2:19.3	1:29.9	:35.5	0	4:24.7

Teachers with aides consistently spent more time in every observation period teaching the class as a whole than did teachers without aides. The total time of forty-five minutes and seven seconds for the ten teachers without aides is less than half the total time of ninety-six minutes for the ten teachers with aides. The pattern of time by observation period was similar for both groups with the greatest amount of time during the second ten minute period, next highest the first period, followed by the third period, with the least time in total group instruction in the fourth ten minute observation period.

The above figures indicate that the teachers with an aide averaged nine minutes thirty-six seconds or approximately 25 per cent of the forty minute observation period teaching the total group. This compares to teachers without aides who averaged four minutes and 24.7 seconds or approximately eleven per cent of their time teaching the

total group.

Not all teachers carried on Total Group Instruction. Table 11, page 91, shows that one teacher with an aide and four teachers without aides had no time recorded in Total Group Instruction. Three teachers with aides, 1A, 2A and 3A accounted for seventy minutes and twelve seconds or seventy-three per cent of the time teachers with aides spent in Total Group Instruction. Three teachers without aides, 2, 6 and 7, had a total of thirty-two minutes and twenty-two seconds or eighty-four per cent of the time their group had in this category.

The majority of teachers, fourteen out of twenty, spent little or, in some cases, no time instructing the total group. When these teachers did spend time in this category it was during the first or second ten minute observation period.

Hypothesis 4. There is no difference between the ranking of times in Differentiated Instruction for the ten teachers with aides and the ten teachers without aides.

The time that each of the ten teachers with aides spent in Differentiated Instruction during the four ten minute observation periods is shown in Table 12, page 95, and for each of the ten teachers without aides in Table 13, page 97. The Mann-Whitney U comparison for four of the five sets of time produced the following data:

Second ten minute observation period	U = 31.5
Third ten minute observation period	U = 48
Fourth ten minute observation period	U = 40.5
Total forty minute observation period	U = 44.5

The first ten minute observation period was not compared because of the large number of zero times for both sets of teachers. A U = 50 indicates perfect agreement in the distribution of times between the two sets of teachers. On the basis of the four comparisons the hypothesis that there is no difference between the two sets of teachers in ranking of time spent in Differentiated Instruction is accepted at the .05 level.

The total and average times in Differentiated Instruction for each set of teachers were as follows:

		First Ten Minute Period	Second Ten Minute Period	Third Ten Minute Period	Fourth Ten Minute Period	Total Forty Minute Period
Aides	Total Time	8:00	49:42	75:51	82:10	216:35
	Average	:53	4:58.2	7:47.1	8:13.2	21:39.5
No Aides	Total Time	8:33	61:44	75:03	93:13	238:33
	Average	:51.3	6:10.4	7:30.3	9:19.3	23:51.3

The pattern of activities for both groups of teachers was very similar, an increase in Differentiated Instructional time from the first to last observation period and approximately the same amount of time by period.

Table 12, page 95, indicates that the range of times for teachers with aides was from zero to thirty minutes and forty-seven seconds. Teacher 1A had no time recorded in Differentiated Instruction and teachers 2A, 5A, 8A and 10A had times below the twenty-one minute and 39.5 second average for this group.

TABLE 12

TIME AND RATING IN DIFFERENTIATED INSTRUCTION PLUS
AVERAGE NUMBER OF INSTRUCTIONAL ACTIVITIES
OF TEN TEACHERS WITH AIDES

School and Teacher Number	First Ten Minute Period			Second Ten Minute Period			Third Ten Minute Period			Fourth Ten Minute Period			Total Forty Minute Period		
	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	4:13	16	4	4:13	16	4
3	6:03	12	2	9:26	20	2.1	6:54	14	2	9:40	20	2.1	32:03	66	2.1
4	0	0	0	10	30	3	10	30	3	10	38	3.8	30	98	3.3
5	0	0	0	8:40	26	3.1	10	30	3	10	40	4	28:40	96	3.4
6	0	0	0	0	0	0	10	25	2.5	10	30	3	20	55	2.8
7	2:47	6	2	10	20	2	10	20	2	10	20	2	32:47	66	2
8	0	0	0	1:36	6	4	10	24	2.4	9:19	22	2.2	20:55	52	2.9
9	0	0	0	10	30	3	9:20	23	2.4	10	26	2.6	29:20	79	2.9
10	0	0	0	0	0	0	9:37	18	2	9	18	2	18:34	36	2
Total	8:50	18	4	49:42	132	17.2	75:51	184	17.3	82:10	230	25.7	216:35	564	25.6
Average	:53	1.8	.4	4:58.2	13.2	1.72	7:47.1	18.4	1.73	8:13.2	23.0	2.57	21:39.5	56.4	2.56

As shown by Table 13, page 97, all ten teachers without aides had some time in Differentiated Instruction with a range of ten minutes to thirty minutes and fifty-six seconds. Three teachers, 2, 4 and 8, had times below the group's average of twenty-three minutes and 51.3 seconds.

For the teachers with aides Table 12 shows that two teachers had Differentiated Instructional time in the first observation period, seven in the second observation period, eight in the third observation period and nine in the fourth observation period. Table 13, page 97, shows three teachers without aides had Differentiated Instructional time in the first observation period, seven in the second period, eight in the third period and ten in the fourth period. Again a very similar pattern of Differentiated Instructional activity for both groups is apparent.

Hypothesis 5. There is no difference between the ranking of the ratings given Differentiated Instruction for the ten teachers with aides and the ten teachers without aides.

The rating given to the time that each teacher with an aide spent in Differentiated Instruction is presented in Table 12, page 95 and for the teachers without aides in Table 13, page 97. The Mann-Whitney U comparison for the four sets of ratings produced the following data:

Second ten minute observation period	U = 49
Third ten minute observation period	U = 45.5
Fourth ten minute observation period	U = 45.5
Total forty minute observation period	U = 45

The first ten minute observation period was not compared because of the large number of zero ratings for both sets of teachers. On the

TABLE 13

TIME AND RATING IN DIFFERENTIATED INSTRUCTION PLUS
AVERAGE NUMBER OF INSTRUCTIONAL ACTIVITIES
OF TEN TEACHERS WITHOUT AIDES

School and Teacher Number	First Ten Minute Period			Second Ten Minute Period			Third Ten Minute Period			Fourth Ten Minute Period			Total Forty Minute Period		
	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.	Time	Rating	Ave. # Act.
1	0	0	0	10	20	2	10	20	2	10	20	2	30	60	3
2	0	0	0	0	0	0	0	0	0	10	30	3	10	30	3
3	0	0	0	10	20	2	9:05	18	2	9:12	18	2	28:17	56	2
4	0	0	0	0	0	0	0	0	0	10	20	2	10	20	2
5	2:35	6	2.4	10	20	2	5:58	12	2	5:16	10	2	23:49	48	2
6	0	0	0	5:01	10	2	10	20	2	10	20	2	25:01	50	2
7	0	0	0	10	20	2	10	20	2	10	20	2	30	60	2
8	0	0	0	0	0	0	10	27	2.7	10	23	2.3	20	50	2.5
9	:56	2	2	10	30	3	10	45	4.5	10	72	7.2	30:56	149	4.8
10	5:02	10	2	6:43	21	3	10	23	2.3	8:45	18	2	30:30	72	2.3
Total	8:33	18	6.4	61:44	141	16	75:03	185	19.5	93:13	251	26.5	238:33	595	25.6
Average	:51.3	1.8	.64	6:10.4	14.1	1.6	7:30.3	18.5	1.95	9:19.3	25.1	2.65	23:51.3	59.5	2.56

basis of these four comparisons the hypothesis that there was no difference between the two sets of teachers in ratings given Differentiated Instruction is accepted at the .05 level.

Table 12, page 95 shows that the rating given Differentiated Instruction of teachers with aides had a range of zero to ninety-eight, a total rating for all ten teachers of 564 and an average of 56.4 per teacher. For the teachers without aides Table 13, page 97 shows the rating given Differentiated Instruction ranged from thirty to 149, with a total rating of 595 for all ten teachers and an average per teacher of 59.5. The two sets of teachers provided almost the same amount of small group or individual help. With the exception of the two extremes, teacher 1A with an aide who had no rating, and teacher 9 without an aide who had a rating of 149, you could expect a teacher in either group to have two or three different instructional activities being carried on at the same time. In classes without an aide the most common pattern of organization would be a reading group receiving instruction from the teacher, and seat work for the other children, with the children doing seat work moving to another planned activity when they finish. In classes with an aide the same organization could be expected with the aide sometime helping individuals or small groups of children.

On the basis of the acceptance of hypotheses one through five and from the analyses of the time scores, the answer to research question II is that the ten teachers with full time aides did not provide more individual or small group instruction for children than the ten teachers who did not have aides.

QUESTION III

Will the activities performed by aides have some pattern and logical relationship to the time teachers will spend in non-instructional and instructionally related activities?

Hypothesis 6. There is no relationship between the activities performed by aides and the time teachers spend in Clerical, Routine, Total Group Instruction and Differentiated Instructional activities.

The tallies of aides' Clerical and Routine activities were ranked separately from highest to lowest and compared with the teachers' time in these same two areas, ranked from lowest to highest. The premise was that teachers with the smallest times in Clerical and Routines would have aides who were carrying on these activities. The Kendall Rank Correlation Coefficient for the Clerical comparison produced an $r = -.22$, and for Routines an $r = .13$.

The aides' tallies in the two areas of Total Group Instruction and Differentiated Instruction were ranked from lowest to highest and compared to the ranking of teacher time from lowest to highest. The Kendall Rank Correlation Coefficient for the Total Group Instruction produced a $r = -.33$, and for Differentiated Instruction an $r = .44$.

On the basis of these four correlations the hypothesis of no relationship between the tally of aides' activity and the time teachers spend in Clerical, Routines, Total Group Instruction and Differentiated Instructional activity is accepted at the .05 level.

Table 14, pages 101 to 103, lists the kind and frequency of each of the ten aides' activities for the forty minute observation. The total

tally for all aides was 125 with a count of forty in Clerical for 32 per cent, thirty-nine in Routines for 31.2 per cent, thirty-three in Differentiated Instruction for 26.4 per cent and thirteen tallies in Total Group Instruction for 10.4 per cent.

The tally of aide activities in the Clerical category ranged from one to nine for an average of four tallies per aide. The range in the Routine categories was from one to ten tallies, an average of 3.9 for each aide. In Total Group Instructional activity four aides had no involvement while the six remaining aides had from one to six tallies. Aide 1A had a tally of six in Differentiated Instruction, almost fifty per cent of the total count of thirteen for all aides. Every aide but 1A was involved with individuals or small groups of children in Differentiated Instruction and the range of tallies was from two to six with an average tally of 3.3 per aide.

The spread of aides' activtities made it difficult to describe the role of a typical aide. A total of thirty-one different aide activities were recorded. As Table 15, page 104, shows there was only one activity performed by a majority of aides and that was, "watching the teacher in action," in which seven aides were recorded a total of twelve times. Three activities, distributing materials, organizing for a new activity and listening to the intercom were common to five aides while all the remaining twenty-seven activities were performed by four or less aides.

An interesting note from Table 14, pages 101 to 103, is that eight aides, 1A, 3A, 4A, 5A, 7A, 8A, 9A and 10A all were involved in some type of instruction, usually relating to a reading group.

TABLE 14

TEACHER AIDE ACTIVITY FOR THE FORTY MINUTE OBSERVATION PERIOD AND TIME TEACHERS SPENT IN THE SAME CATEGORY

Teacher Aide	Clerical Activity	No.	Routines Activity	No.	Group Instruction Activity	No.	Differentiated Instruction Activity	No.
1A	Watching teacher	2	Collecting material	1	Leading discussion	3		
	Preparing materials	1	Taking lunch count	1				
	Cleaning or tidying room	1	Opening exercises	1	On-going activity	1		
			Taking attendance	1				
	Taking down audio-visual equipment	1	Removing child from room	1	Showing film-strip	2		
Aide Total		5		5		6		0
Teacher Time	19:51		3:05		34:37		0	
2A	Preparing materials	4	Opening exercises	1			Listening center	1
	Filing, sorting papers	2	Taking attendance	1			Language center	
	Conversing with another adult	1	Collecting material	1				
			Distributing material	1				
			Listening to intercom	1				
			Organizing for new activity	1				
Aide Total		7		6				2
Teacher Time	:40		14:16		21:16		4:13	
3A	Watching teacher	1	Helping children, non-instructional	1			Reading group	3
	Setting up audio-visual equipment	1	Organizing for new activity	2			Helping with seat work	1
			Listening to intercom	1				
			Distributing material	2				
Aide Total		2		6				4
Teacher Time	:09		5:08		2:40		32:03	

TABLE 14 (continued)

Teacher Aide	Clerical Activity	No.	Routines Activity	No.	Group Instruction Activity	No.	Differentiated Instruction Activity	No.
4A	Watching teacher	1	Listening to intercom	1			Reading group	3
	Filing, sorting paper	1					Listening center	1
	Conversing with another adult	1					Arithmetic center	1
Aide Total		3		1				5
Teacher Time	0		3:50		6:10		30:00	
5A	Watching teacher	1	Opening exercise	1			Reading group	3
			Organizing for new activity	1				
			Listening to intercom	1				
Aide Total		1		3				3
Teacher Time	1:30		10:27		0		28:40	
6A	Conversing with another adult	2	Collecting material	1	Lead singing	1	Arts and Crafts	2
	Setting up audio-visual equipment	1						
Aide Total		3		1		1		2
Teacher Time	6:16		13:14		6:40		20:00	
7A	Preparing materials	1	Opening exercises	1	On-going activity	1	Arithmetic group	2
	Conversing with another adult	2	Organizing for new activity	1			Reading to children	1
	Watching teacher	1	Listening to intercom	1				
Aide Total		4		3		1		3
Teacher Time	0		7:14		:55		32:47	

TABLE 14 (continued)

Teacher Aide	Clerical Activity	No.	Routines Activity	No.	Group Instruction Activity	No.	Differentiated Instruction Activity	No.
8A	Filing, sorting papers	4	Taking attendance	1	Lecturing	1	Helping with seat work	3
	Correcting papers	2	Distributing material	1	Leading discussion	1	Language center	3
	Watching teacher	2						
	Preparing material	1						
Aide Total		9		2		2		6
Teacher Time	6:55		8:01		6:00		20:55	
9A	Filing, sorting papers	1	Taking attendance	1	On-going activity	1	Reading group	3
	Watching teacher	1	Helping children non-instructional	1			Helping with seat work	3
			Organizing for new activity	2				
			Distributing material	5				
			Collecting material	1				
Aide Total		2		10		1		6
Teacher Time	1:01		10:01		3:23		29:20	
10A	Watching teacher	4	Distributing material	2	Presenting arithmetic lesson	2	Arithmetic group	2
Aide Total		4		2		2		2
Teacher Time	:14		7:00		14:19		18:34	
		40		39		13		33

TABLE 15

SUMMARY OF TEACHER AIDE FUNCTION BY ACTIVITY

Clerical			Routines		
Activity	Tallies	No. Aides Involved	Activity	Tallies	No. Aides Involved
Watching teacher	12	7	Opening exercise	4	4
Preparing materials	7	4	Taking attendance	4	4
Filing, sorting papers	8	4	Listening to intercom	5	5
Conversing with another adult	6	4	Distributing material	11	5
Preparing audio-visual equipment	3	3	Collecting material	4	4
Correcting papers	3	2	Organizing for new activity	7	5
Cleaning or tidying room	1	1	Helping children - non-instructional	2	2
			Taking lunch count	1	1
			Removing child from room	1	1
	40			39	

Group Instruction			Differentiated Instruction		
Activity	Tallies	No. Aides Involved	Activity	Tallies	No. Aides Involved
Leading discussion	4	2	Helping with seat work	7	3
On-going activity	3	3	Reading group	12	4
Showing filmstrip	2	1	Arts and Crafts	2	1
Leading singing	1	1	Language center	4	2
Lecturing	1	1	Arithmetic group	4	2
Presenting arithmetic lesson	2	1	Arithmetic center	1	1
			Reading to children	1	1
			Listening center	2	2
	13			33	

The answer to research question III is that the activities performed by aides had no common pattern and there was no evidence of a relationship between the tally of aide activities and the time a teacher spent in non-instructional or instructionally related activities.

QUESTION IV

Will the addition of aides to the classroom have any effect upon pupil achievement as measured by standardized tests?

Due to the lack of differences in the distribution of times for the defined categories of instruction, the question of differences in academic achievement of classes with or without aides becomes a moot point. If differences are indeed detected there is no empirical basis to attribute such differences to the independent variables under study and a search for revelant variables would have to be begun. Thus the following is presented purely for descriptive purposes and to further delineate the classroom dimension of the present study.

Hypothesis 7. There is no difference in the beginning of the school year Lee-Clark Reading Readiness Test means between pupils in classes with aides and without aides.

Hypothesis 8. There is no difference in the beginning of the school year Lee-Clark Reading Readiness Test means between boys and girls across treatment groups.

Lee-Clark and Metropolitan Achievement scores were available for 158 of the 229 children in classes with aides, ninety-four of the 119 boys and ninety of the 100 girls; and for 214 of the 228 children in

classes without aides, 133 of the 139 boys and eighty-nine girls. The majority of the loss of N in schools with aides was caused by two schools which refused to administer the Metropolitan Achievement Test after initially agreeing to do so.[108]

The F ratios for homogeneity of variance on the Lee-Clark Reading Readiness Test are shown in Table 16, page 107. There were no significant F ratios suggesting that at the beginning of the school year the boys and girls in the two groups could be considered to come from populations with equal variances.

The analysis of variance of the Lee-Clark Reading Readiness test scores produced the following data:

Source	Sum Squares	DF	Mean Square	F	P Less Than
Within Cells	54620.826	368	148.426		
Sex	801.371	1	801.371	5.327	.021
Treatment	3300.005	1	3300.005	22.233	.001

On the basis of the analysis of variance hypothesis 7 that there is no difference between the two groups in Lee-Clark Reading Readiness scores is rejected at the .05 level and hypothesis 8, that there is no difference between boys and girls across treatment groups is rejected at the .05 level.

Table 17, page 108, gives the mean scores, standard deviation and N of boys and girls in the ten classes with aides and ten schools without

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[108]The loss of fifty-one pupil scores in aide classes did not significantly change the character of variance and mean scores on the Lee-Clark Reading Readiness Test. The assumption that the lost scores could be treated as a random phenomenon was tenable for both covariate and dependent variables.

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TABLE 16

HOMOGENEITY OF VARIANCE ON LEE-CLARK READING READINESS TEST

	Boy-Aide to Girls Aide	Boys-No Aide to Girls-No Aide	Boys-Aide to Boys-No Aide	Girls-Aide to Girls-No Aide	Boys-Aide to Girls-No Aide	Girls-Aide to Boys-No Aide
Degrees of Freedom	93 & 63	80 & 132	93 & 132	80 & 63	80 & 93	63 & 132
F ratio	1.093	1.155	1.120	1.114	1.019	1.040
Sig. at .05 level	No	No	No	No	No	No

aides.

On the basis of the Lee-Clark Reading Readiness scores it is apparent that as a group the boys and girls in the non-aide classes were superior in beginning reading ability to the boys and girls in the classes with aides. Girls in both groups were generally more advanced than the boys. These results also indicate that the boys and girls in each group were more alike than they were like their counterparts in the other group.

Hypothesis 9. There is no difference in the end of the year Metropolitan Achievement Test adjusted means between pupils in classes with aides and classes without aides. (Lee-Clark scores as covariate).

Hypothesis 10. There is no difference in end of year Metropolitan Achievement Test adjusted means of boys and girls across treatment groups. (Lee-Clark scores as covariate).

TABLE 17

MEAN SCORES ON LEE-CLARK TEST

	Classes with Aides			Classes without Aides		
	Mean	S.D.	N	Mean	S.D.	N
Boys	31.936	12.523	94	37.985	11.744	133
Girls	35.141	11.979	64	41.136	12.645	81

The F ratios for homogenity of variance of the Metropolitan Achievement sub-tests on Word Knowledge, Word Discrimination and Reading are shown in Table 18, page 110. These F ratios indicate that boys and girls in classes with aides could be considered to come from populations with different variances in Word Discrimination and Reading but not in Word Knowledge, while boys and girls in classes without aides appear to come from populations having the same variances for the three sub-tests.

When variances of boys and girls are compared across groups they come from common variance populations on only three of the twelve comparisons as shown in Table 18, page 110.

Not completely meeting the assumption of homogeneity of variance places severe limitations on the validity and generalizations that can be made from the analysis of covariance. The above holds when we are in effect testing the hypothesis that the two samples come from the same population which would seem to follow in the present study.[109]

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[109] Janet D. Elashoff, "Analysis of Covariance: A Delicate Instrument," American Educational Research Journal, (6:383-401, May 1969).

It must also be noted that the Lee-Clark means for the boys and girls in classes with aides were significantly different from boys and girls in classes without aides. Thus the analysis of covariance may be subject to errors of extrapolation.[110]

With these limitations in mind, and since the covariate did meet the assumption of homogeneity of variance, the analysis of covariance was performed to help delineate relations between the two treatment groups which might be helpful in interpretating the observational data. These results can only be used on a descriptive basis and as a basis for further study relating pupil achievement to teacher timed functions.

The analysis of covariance on the Metropolitan Achievement Word Knowledge scores produced the following data.

Source	Sum Squares	DF	Mean Square	F	P Less Than
Within Cells	47390.962	367	129.131		
Regression	2072.094	1	2072.094	16.046	.001
Sex	8.703	1	8.703	.067	.795
Treatment	2862.476	1	2862.476	22.167	.001
Sex-Treatment Interaction	5.421	1	5.421	.042	.838

The analysis of covariance on the Metropolitan Achievement Word Discrimination scores produced the following data.

Source	Sum Squares	DF	Mean Square	F	P Less Than
Within Cells	43293.268	367	117.965		
Regression	490.506	1	490.506	4.158	.042

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[110] *Ibid.*

TABLE 18

HOMOGENEITY OF VARIANCE ON METROPOLITAN ACHIEVEMENT TESTS

TEST	Comparisons					
	Same Groups			Aide Vs Non-Aide Classes		
	Boy-Aide to Girls Aide	Boys-No Aide to Girls-No Aide	Boys-Aide to Boys-No Aide	Girls-Aide to Girls-No Aide	Boys-Aide to Girls-No Aide	Girls-Aide to Boys-No Aide
Degrees of Freedom	93, 63	80, 132	93, 132	80, 63	80, 93	63, 132
Word Knowledge F ratio	1.458	1.086	1.817	2.441	1.674	2.650
Sig. at .05	No	No	Yes	Yes	Yes	Yes
Word Discrimination F ratio	1.519	1.259	1.763	2.128	1.401	2.679
Sig. at .05	Yes	No	Yes	Yes	No	Yes
Reading F ratio	1.535	1.117	1.177	2.019	1.315	1.807
Sig. at .05	Yes	No	No	Yes	No	Yes

Source	Sum Squares	DF	Mean Square	F	P Less Than
Sex	4.022	1	4.022	.034	.854
Treatment	3248.065	1	3248.065	27.534	.001
Sex - Treatment	11.915	1	11.915	.101	.751

The analysis of covariance on the Metropolitan Achievement Reading scores produced the following data.

Source	Sum Squares	DF	Mean Square	F	P Less Than
Within Cells	42536.195	367	115.902		
Regression	1217.688	1	1217.688	10.506	.001
Sex	1.910	1	1.910	.016	.898
Treatment	2933.389	1	2933.389	25.309	.001
Sex-Treatment Interaction	79.720	1	79.720	.688	.407

Hypothesis 9, that there is no difference in Metropolitan Achievement test adjusted means between the two groups, was rejected at .05 level for the three sub-tests - Word Knowledge, Word Discrimination and Reading.

Hypothesis 10, that there is no difference in Metropolitan Achievements test adjusted means of boys and girls across treatment groups, was accepted at the .05 level for the three sub-tests - Word Knowledge, Word Discrimination and Reading.

There were no significant Sex-Treatment Interaction effects on the three sub-tests.

The means and standard deviations on Lee-Clark Reading Readiness Test and Metropolitan Sub-test sections are shown in Table 19, page 112. Over the school year the achievement of the boys and the girls in classes with aides became more varied than the achievement of boys and girls in classes without aides. The direction of these changes is discussed in greater detail in a later part of this chapter.

Considering the limitations discussed previously, no attempt will be made to generalize from the results of the analysis of covariance or

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TABLE 19

LEE-CLARK AND METROPOLITAN ACHIEVEMENT TEST
MEANS AND STANDARD DEVIATIONS

		LEE CLARK	MAT Sub-tests		
			Word Knowledge	Word Discrimination	Reading
Aide Classes	N				
Boys	94				
Mean		31.936	35.468	36.681	34.383
S.D.		12.523	12.729	11.686	10.985
Girls	64				
Mean		35.141	36.219	36.516	33.781
S.D.		11.979	15.371	14.402	13.610
Non-Aide Classes					
Boys	133				
Mean		37.985	42.624	43.120	40.383
S.D.		11.744	9.442	8.799	10.122
Girls	81				
Mean		41.136	42.864	43.691	41.691
S.D.		12.645	9.838	9.871	9.578

to provide a definitive asnwer to research question IV. The assumption that an aide in the classroom can allow more instructional time for the teacher and provide more individual pupil help leading to improved performance of pupils was not shown. A reasonable expectation might have been that pupils in classes with aides would be helped to approximate the performance of pupils in classes without aides, but not to do work superior to those children whose Lee-Clark Reading Readiness Test scores were higher. The evidence did not support this expectation.

It would also be expected that the girls would maintain their

initial superiority in reading to the end of the year. This was not evident. The adjusted means of girls on end of the year Metropolitan tests of Word Knowledge, Word Discrimination and Reading were not significantly different from boys across treatment groups.

QUESTION V

Will there be a positive relationship between the time teachers with or without aides spend in instructionally related activities and pupil achievement?

Hypothesis 11. For classes with or without aides there is no relationship between the ranking of classes on Metropolitan Achievement Reading sub-test means and:

a. Teacher's ranking on time in Clerical activity.

b. Teacher's ranking on time in Routine activity.

c. Teacher's ranking on time in Total Group Instruction.

d. Teacher's ranking on time in Differentiated Instruction.

e. Teacher's ranking on rating given Differentiated Instruction.

Table 20, page 114, gives the Kendall Rank Correlation Coefficients (r) and Ho of p for the comparisons of ranking of Metropolitan Achievement Class means with the teacher's time in Clerical Activities, Routine Activities, Total Group Instruction, Differentiated Instruction and ratings given Differentiated Instruction.

For the eight classes with aides no significant relationships were found. The ranking of Metropolitan reading means and ranking of

TABLE 20

KENDALL RANK CORRELATION COEFFICIENTS FOR CLASSES WITH AND WITHOUT AIDES BETWEEN METROPOLITAN READING MEANS AND OBSERVATIONAL DATA ON TEACHERS

	Classes Aides N=8		Classes - Non-Aides N=10	
Comparison	r	Ho p	r	Ho p
Reading vs Clerical	.04	.500	.17	.271
Reading vs Routines	.21	.234	.28	.146
Reading vs Group Instruction	.00	.548	.11	.364
Reading vs Differentiated Instruction	.00	.548	-.37	.078
Reading vs Rating Differentiated Instruction	.04	.500	-.44	.045

teacher time in Clerical activity produced an r = .04, in Routines an r = .21, in Group Instruction r = .00, in Differentiated Instruction an r = .00, and in the rating given Differentiated Instruction an r = .04.

For the ten classes without aides there was only one significant relationship and this was between Metropolitan reading class means and the rating on Differentiated Instruction which produced an r = -.44 significant at the .05 level. The ranking of Metropolitan reading class means and teacher time in Clerical activities produced an r = .17 and

and in Differentiated Instruction an r = -.37, in Routines, an r = .28 and in Total Group Instruction an r = .11.

On the basis of these results hypothesis 11 was accepted. Whether or not aides are present in the classrooms there is no relationship between the ranking of classes on Metropolitan Achievement Test reading means and teacher time in any of the categories of behavior.

The class means for the Lee-Clark and Metropolitan sub-tests, Word Knowledge, Word Discrimination and Reading, were computed for eight classes with aides and ten classes without aides. These means along with the time teachers spent in Clerical Activity, Routines, Group Instruction and Differentiated Instruction are given in Table 21, page 116.

The lack of relationship between the way teachers spend their time as measured by this instrument and pupil achievement is further evidenced by an examination of Table 21. Class 9A had the second highest Lee-Clark score at the beginning of the school year but had the lowest Metropolitan scores at the end of the school year; yet the teacher's time for all four categories was fairly close to the average time for that group. Teacher 5A was also near the group's average in time in the four categories but in this case the pupils went from third from lowest in Lee-Clark class means to highest in Metropolitan class means.

Similar examples can be found in classes without aides. Teacher 9, who had an extremely high rating on Differentiated Instruction, had the class with the lowest Metropolitan Reading test means while teacher

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TABLE 21

LEE-CLARK AND METROPOLITAN TEST CLASS MEANS AND TIME TEACHERS SPENT IN CLERICAL, ROUTINE, TOTAL GROUP INSTRUCTION AND DIFFERENTIATED INSTRUCTION

		Metropolitan Test				Teacher Time				
Class	N	Lee Clark	Word Knowledge	Word Discrim.	Reading	Clerical	Routines	Group Inst.	Diff. Inst.	Rating Diff. Inst.
Aides										
1A	19	37:526				19:51	3:05	34:37	0	0
2A	17	38:176	44:824	40:176	37:765	:40	14:16	21:16	4:13	16
3A	21	25:154				:09	5:08	2:40	32:03	66
4A	14	28:000	33:143	34:500	32:429	0	3:50	6:10	30:00	98
5A	17	26:706	47:765	51:176	45:765	1:30	10:27	0	28:40	96
6A	19	42:053	43:158	42:526	43:053	6:16	13:14	6:40	20:00	55
7A	21	28:000	41:048	41:521	42:381	0	7:14	:55	33:07	66
8A	24	34:583	39:333	40:250	31:875	6:55	8:01	6:00	20:55	52
9A	28	40:786	15:750	16:036	14:929	1:01	10:01	3:23	29:20	79
10A	22	21:864	32:636	38:909	36:045	:14	7:00	14:19	18:37	36
No Aides										
1	23	46:565	42:130	43:217	43:609	1:07	8:43	3:40	30:00	60
2	36	43:500	45:217	45:739	44:543	:21	10:56	19:30	10:00	30
3	18	22:389	35:389	38:667	37:222	4:14	6:29	3:05	28:17	56
4	22	29:818	46:318	44:000	45:500	0	30:00	0	10:00	20
5	26	46:269	41:423	40:962	42:615	:39	18:04	0	23:49	48
6	18	44:111	43:556	45:222	38:833	0	5:43	9:16	25:01	50
7	14	29:571	34:643	41:714	32:357	0	3:30	8:36	30:00	60
8	24	39:000	42:577	45:769	40:423	:25	19:30	0	20:00	50
9	22	38:773	41:455	39:227	26:955	:11	10:28	0	35:56	149
10	20	42:900	48:100	46:950	48:150	4:12	6:31	0	30:30	72

10 who was near the group's average in time in the four categories had the highest class Metropolitan Reading Test mean.

The answer to research question IV appears to be that there is

no positive relationship between the way teachers with or without aides spend their time and pupil achievement, as measured by Metropolitan Achievement reading class means.

PUPIL ACHIEVEMENT FROM LEE-CLARK TO METROPOLITAN TEST

The boys and the girls in classes with aides had larger variances on Metropolitan Achievement Tests of Word Knowledge, Word Discrimination and Reading than did boys and girls in classes without aides. To examine this occurrence in greater detail, scatter diagrams of Metropolitan Reading and Lee-Clark scores were made for the boys and the girls in each group. These diagrams are shown in Figures 4, 5, 6 and 7 on pages 120 to 123.

A comparison of these four figures reveals a greater dispersion for boys and for girls in aide classes. Was there a differential effect? Did the pupils who had initially low Lee-Clark scores maintain their relative positions or did some of these fall back or spurt ahead? The same type of question could be asked about the pupils who had initially high Lee-Clark scores.

The first look will be at the pupils who scored below the mean on the Lee-Clark test. Following are two sets of figures, A - those who scored below the Lee-Clark mean but above Metropolitan Reading means and B - those who scored below Lee-Clark mean and below Metropolitan Reading means.

	A		B	
	N	Per Cent of Total N	N	Per Cent of Total N
Aides				
Boys	35	37%	19	20%
Girls	20	31%	10	16%
No Aides				
Boys	20	15%	39	29%
Girls	19	23%	21	26%

The A group could be termed "overachievers," pupils with an initial low reading readiness level who achieved better than expected. Considering the usual progress of boys in first grade, having 37 per cent of the total group of boys improve this much is unexpected. The aide classes had a total of eighty-four pupils who scored below their group's Lee-Clark mean and fifty-five or 65.4 per cent of these pupils scored above the mean on the Metropolitan Reading Test. In classes without aides ninety-nine pupils scored below their group's Lee-Clark mean and thirty-nine or 39.2 per cent scored above the Metropolitan Reading test mean. The greater success of teachers with aides in helping children who scored low on the Lee-Clark Test must be considered a significant fact, for this is one of the primary reasons given for providing these teachers with a full time aide.

The following two sets of figures are for pupils who scored above their group's Lee-Clark mean at the beginning of the school year; C - those who were above on Lee-Clark and scored above their group's mean on Metropolitan sub-test reading, and D - those who were above on Lee-Clark

but scored below their group's mean on Metropolitan sub-test reading.

	C		D	
	N	Per Cent of Total N	N	Per Cent of Total N
Aides				
Boys	24	26%	16	17%
Girls	18	28%	16	25%
No Aides				
Boys	40	30%	34	26%
Girls	20	25%	21	26%

The progress of these children was approximately the same for the two groups. The "D" group might be termed "underachiever", pupils who had high initial reading expectations but did not perform as well as expected. The teachers with aides had seventy-four pupils above Lee-Clark mean; thirty-two, or 43.2 per cent, of these pupils fell below their groups means on the Metropolitan reading sub-test. In classes without aides there were 115 pupils who were above the mean on Lee-Clark and fifty-five, or 47.8 per cent, of these pupils scored below their group's Metropolitan reading test mean. This regression is obviously something to be concerned about and should be given closer examination.

MAT Reading	2-5	6-9	10-13	14-17	18-21	22-25	26-29	30-33	34-37	38-41	42-45	46-49	50-53	54-57	58-61	62-65
70-73																
66-69																
62-65																
58-61						1										
54-57				35			1	1								
50-53								1		11		24				
46-49					1	1		11			1		11			
42-45				1	11	1		111	11			11				
38-41					111		11	11	111	11	1					
34-37		1	1	1	111	111	11	11	111	1	1	11	1		1	
30-33		1		111	1		11	1	1	1	1			1		
26-29					1		1		1		1		1			
22-25				1	19	1		1	1		1	16				
18-21													1			
14-17					1	111		1		11	1	1	1	1		

mean 34.383

n = 94

Lee-Clark

Mean 31.936

FIGURE 4

BOYS IN CLASSES WITH AIDES - LEE-CLARK AND METROPOLITAN READING SCORE

MAT Reading		2-5	6-9	10-13	14-17	18-21	22-25	26-29	30-33	34-37	38-41	42-45	46-49	50-53	54-57	58-61
	70-73															
	66-69															
	62-65												1			
	58-61								1	1						
	54-57												1		1	
	50-53				20									18		
mean 33.781	46-49						11	1				1				1
	42-45					1	1	11	11	1		1	1			
	38-41				111				11	1	1		11			
	34-37				1	1	1	1	1		1	11	1		1	
	30-33						11	1	1	1		11	1			
	26-29				1	1	1							1		
	22-25				1	10						1	16	1		
	18-21											1	11			
	14-17								11		11	111		1		

N = 64

Lee-Clark

mean 35.141

FIGURE 5

GIRLS IN CLASSES WITH AIDES - LEE-CLARK AND METROPOLITAN READING SCORES

MAT Reading	2-5	6-9	10-13	14-17	18-21	22-25	26-29	30-33	34-37	38-41	42-45	46-49	50-53	54-57	58-61	62-65	66-69	70-73
70-73															1			
66-69																		
62-65																1		
58-61					20									1	40			1
54-57								1		1				11			1	
50-53							1	1		11	11	11	1	11				
46-49						1	11	1	1111	11	1111	1	11			1		
42-45				1	1	11		1	1111	1111	11	1111	11			1		
38-41				1111	1	1	1	111	11	1	1111	11	1	111				
34-37	1					11	11	1111	111	11	11	11	1		1			
30-33				1	1		1		11	11	1	1		11				
26-29						1	1		1	1	1	1						
22-25					39	1	11		1	1		1	34					
18-21							1				111							
14-17											1							n = 133
10-13	1																	

Lee-Clark

mean 40.383

mean 37.985

FIGURE 6

BOYS IN CLASSES WITHOUT AIDES - LEE-CLARK AND METROPOLITAN READING SCORE

MAT Reading	2-5	6-9	10-13	14-17	18-21	22-25	26-29	30-33	34-37	38-41	42-45	46-49	50-53	54-57	58-61	62-65
70-73																
66-69																
62-65																20
58-61															1	1
54-57						19						1		1	111	
50-53										1	111		1		11	1
46-49						1		1			111	1		1	1	111
42-45						1	1		111	111			11	1		1
38-41			1			1	1		111		11	11	111	11	11	
34-37							11	11	11		11	1	111	1	1	
30-33										11	1					1
26-29												1	11			
22-25						21		1				1	1		21	
18-21																
14-17																
10-13			1													

mean 41.691

mean 41.136

n = 81

Lee-Clark

FIGURE 7

GIRLS IN CLASSES WITHOUT AIDES - LEE-CLARK AND METROPOLITAN READING SCORE

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The major purposes of this study are to compare the utilization of instructional time of first grade classroom teachers with and without full time teacher aides, to compare the academic performance of children in these two groups, and to examine the relationship between teacher and aide activity. The development of an observation instrument which could provide a timed record of teacher behavior, essential to securing data for the study, emerged as a sub-purpose. Five research questions were formulated and statistical hypotheses that would attempt to answer the research questions were established.

The Summary in this chapter contains a review of research procedures, a restatement of the five research questions and accompanying hypotheses and a brief review of the findings. Following the Summary are the Conclusions and Recommendations derived from the study.

SUMMARY

Research Procedures

Twenty first grade classroom teachers from the same geographical location in Baltimore County, Maryland were utilized in this study. The selection of the ten classroom teachers with aides was limited to those first grade teachers in the Federal Title

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I project who had been assigned a full time teacher's aide. The children in the aide classes were those with the lowest expectations in reading as indicated by the Lee-Clark Reading Readiness Test. The ten teachers without aides were selected because they had been assigned the children in their schools first grades who had scored lowest in the Lee-Clark test.

The twenty teachers were all rated as satisfactory teachers by the local school administration and were fully certified according to the Maryland State Department of Education requirements. The years of teaching experience of the two groups of teachers were found to be comparable.

The total school enrollment of the non-aide schools was slightly larger but there were no significant differences between the two sets of schools in the distributions of total first grade enrollments, total school enrollments and enrollments in the project classes.

A comparison of the occupational positions of the major wage earners in the homes of pupils in the project indicated no major difference between the two groups. The majority of occupations in both groups were in maintenance and custodial categories.

The twenty teachers in the study were observed for four ten minute periods by a trained observer, using the classroom observation instrument developed by the investigator. The observations were made during the period of May 12, 1969 to

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May 22, 1969 and took place over the first hour of instructional time of the school day. The observation data provided the time that teachers spent in Clerical Activities, Routine Activities, Total Group Instruction and Differentiated Instruction. The Differentiated Instructional time was given a rating by multiplying the time in this area by the number of different instructional activities carried on by the teacher and/or aide. In addition, a tally of the aides' activities was recorded by the observer.

Pupil achievement was measured by the Lee-Clark Reading Readiness Test administered at the beginning of the school year and the Metropolitan Achievement test administered at the end of the school year. Complete data were available for 158 of the 229 pupils in classes with aides and for 214 of the 228 pupils in classes without aides.

QUESTION I

Can a valid and reliable classroom observation instrument be developed which enables the observer to discriminate among Clerical Activity, Routine Activity, Total Group Instruction and Differentiated Instructional Activity of teachers and/or aides and time the activity of teachers in these four categories?

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Validity. The three observers who participated in preliminary development of the instrument and the four observers who participated in the collection of data for the study agreed that the specific items used to identify behavior of teachers and/or aides accurately described Clerical Activities, Routine Activities, Total Group Instruction and Differentiated Instruction, and represented a true and accurate description of the classroom program.

Reliability. Four observers made six paired observations of teachers; four observations of teachers without aides and two observations of teachers with aides. Each observation was for four ten minute periods which provided sixteen time comparisons for each pair of observers and ninety-six time comparisons for the six observations.

In timing Clerical Activities the six observers had a time in agreement of seventy-seven per cent, in timing Routine Activities 88.9 per cent, in timing Total Group Instruction 92.2 per cent and in Differentiated Instruction the time in agreement was 97.8 per cent. The total time the six observers recorded in the four categories was 492 minutes and forty-five seconds of which there was agreement for 461 minutes twelve seconds or 93.6 per cent of the total time.

On the basis of the above percentages of time in agreement the Teacher and Aide Activity Observation Instrument was accepted as satisfactory for use in timing the defined category of teacher activity.

The percentages of time in agreement for each pair of observers were 86.4 per cent, 89.7 per cent, 93.8 per cent, 95.9 per cent, 96.9

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per cent and 99.8 per cent. Based on the preceeding percentages of time in agreement it was concluded that trained observers can reliably time the defined categories using the Teacher and Aide Activity Observation Instrument.

The two paired observers who tallied aide activities secured eighty per cent and eighty-seven per cent agreement, indicating that this function can be adequately fulfilled while the observers are timing the activity of the teacher.

QUESTION II

Will teachers with full time aides devote more time to instructional activities and provide more individual or small group instruction for children than teachers who do not have aides?

Hypothesis 1. There is no difference between the ranking of times in Clerical activities for the ten teachers with aides and the ten teachers without aides.

The Mann-Whitney U comparisons of rankings of time in Clerical activities for the first ten minute periods produced a U = 30.5 and for the total forty minute period a U = 33. On the basis of these comparison hypothesis 1 is accepted at the .05 level.

The pattern of behavior was similar for both groups with the largest amount of time in Clerical Activity occurring in the first ten minute period and decreasing to the fourth period. Teachers with aides averaged three minutes 39.6 seconds in Clerical activity compared to

one minute 6.9 seconds for teachers without aides.

Hypothesis 2. There is no difference between the ranking of time in Routine activity for the ten teachers with aides and the ten teachers without aides.

The Mann-Whitney U comparisons of ranking on time in Routine activities produced the following data.

First ten minute period	U = 44
Second ten minute period	U = 48
Third ten minute period	U. = 40
Fourth ten minute period	U = 49.5
Total forty minute period	U = 39

On the basis of these five comparisons hypothesis 2 was accepted at the .05 level.

Both groups of teachers spent less time in Routines from the first to last observation period with over fifty per cent of each group's time in Routines being spent in the first period. Teachers with aides averaged eight minutes 13.6 seconds in Routines compared to eleven minutes 59.4 seconds without aides.

Hypothesis 3. There is no difference between the rankings of times in Total Group Instruction for the ten teachers with aides and the ten teachers without aides.

The Mann-Whitney U comparisons of ranking of time in Total Group Instruction for the first ten minute period produced a U = 45.5 and for

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the total forty minute period a U = 31.5. On the basis of these comparisons hypothesis 3 is accepted at the .05 level.

The pattern of time by observation period was the same for both groups of teachers with the greatest amount of time during the second period followed by the first, third and fourth periods. Teachers with aides averaged nine minutes thirty-six seconds in Total Group Instruction to four minutes 24.7 seconds for teachers without aides.

Hypothesis 4. There is no difference between the ranking of times in Differentiated Instruction for the ten teachers with aides and the ten teachers without aides.

The Mann-Whitney U comparisons of rankings of time in Differentiated Instruction produced the following data:

Second ten minute period	U = 31.5
Third ten minute period	U = 48
Fourth ten minute period	U = 40.5
Total forty minute period	U = 44.5

On the basis of these comparisons hypothesis 4 was accepted at the .05 level.

The pattern of activity in Differentiated Instruction was very similar for both groups of teachers, an increase from the first to the last observation period. Teachers with aides averaged twenty-one minutes 39.5 seconds in Differentiated Instruction compared to twenty-three minutes 51.3 seconds for teachers without aides.

Hypothesis 5. There is no difference between the ranking of the

ratings given Differentiated Instruction for the ten teachers with aides and ten teachers without aides.

The Mann-Whitney U comparisons of ranking of ratings given Differentiated Instruction produced the following data:

Second ten minute period	U = 49
Third ten minute period	U = 45.5
Fourth ten minute period	U = 45.5
Total forty minute period	U = 45

On the basis of these four comparisons hypothesis 5 was accepted at the .05 level.

The two sets of teachers provided almost the same amount of small group or individual help. Teachers with aides averaged 56.4 in rating given Differentiated Instruction compared to 59.5 for teachers without aides.

All five hypotheses relating to Research Question II were accepted at the .05 level thus indicating no significant difference in the distribution of times for the two groups of teachers. The possibility that teachers with aides devote more time to instructional activities and provide more individual or small group instruction was not empirically confirmed as tested by the Mann-Whitney U statistic or evidenced from the raw time scores.

QUESTION III

Would the activities performed by aides have some pattern and logical relationship to the time teachers would spend in non-instructional and instructionally related activities.

Hypothesis 6. There is no relationship between the activities performed by aides and the time teachers spend in Clerical, Routine, Total Group Instruction and Differentiated Instructional activities.

The Kendall Rank Correlation Coefficient (r) comparing the tally of aide activity with teacher time produced the following data.

Clerical	r = -.22
Routines	r = .13
Total Group Instruction	r = -.33
Differentiated Instruction	r = .44

On the basis of these correlations hypothesis 10 is accepted at the .05 level.

The majority of aide activity, 63.2 per cent was recorded in Clerical and Routine activities, but no common pattern of aide activity could be described. Only one activity stood out, that of "watching the teacher teach." All but two aides had some involvement in direct instruction of children, mostly in working with a reading group.

The possibility that the activity of aides has some relationship to the way teachers spent their time was not empirically confirmed as tested by the Kendall Rank Correlation Coefficient statistic. No common pattern of aide activity was found.

QUESTION IV

Will the addition of aides to the classroom have any effect upon pupil achievement as measured by standardized tests?

Due to the lack of differences in the distribution of times for

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the defined categories of instruction, the question of differences in academic achievement of classes with or without aides becomes a moot point. If differences are indeed detected there is no empirical basis to attribute such differences to the independent variables under study.

Hypothesis 7. There is no difference in the beginning of school Lee-Clark Reading Readiness test means between pupils in classes with aides and without aides.

Hypothesis 8. There is no difference in the beginning of school Lee-Clark Reading Readiness test means between boys and girls across treatment groups.

F ratios for homogeneity of variance on the Lee-Clark Reading Readiness test for six comparisons suggest that at the beginning of the school year the boys and girls in the two groups could be considered to come from populations with equal variances.

On the basis of the analysis of variance of the Lee-Clark Reading Readiness Test hypothesis 7 and hypothesis 8 were rejected at the .05 level.

The boys and girls in non-aide classes were superior in beginning reading ability to boys and girls in classes with aides and girls in both groups were more advanced than boys. Boys and girls in each group were more alike than they were like their counterparts in the other group.

Hypothesis 9. There is no difference in the end of year Metropolitan Achievement Test adjusted means between pupils in classes with aides and classes without aides.(Lee-Clark scores as covariate).

Hypothesis 10. There is no difference in the end of year Metropolitan Achievement Test adjusted means of boys and girls across treatment groups. (Lee-Clark scores as covariate).

The Metropolitan Achievement sub-tests on Word Knowledge, Word Discrimination and Reading were analyzed separately. F ratios for homogeneity of variance indicated that boys and girls in classes with aides could be considered to come from populations with different variances in Word Discrimination and Reading but not Word Knowledge, while boys and girls in classes without aides appear to come from populations having the same variances for the three sub-tests.

When variances of boys and girls are compared across groups for the three Metropolitan Achievement sub-tests they come from common variance populations on only three of the twelve comparisons.

Due to the lack of homogeneity of variance the analysis of covariance can only be used on a descriptive basis for further study relating pupil achievement to teacher timed functions.

On the basis of the analysis of covariance relating to differences in Metropolitan adjusted means between groups, hypothesis 9 was rejected at the .05 level.

On the basis on the analysis of covariance relating to differences in Metropolitan adjusted means between boys and girls, hypothesis 10 was accepted at the .05 level.

No significant sex-treatment interaction effects were noted for the three sub-tests.

The expectation that pupils in classes with aides would show greater improvement over the school year was not supported. Boys and girls in classes without aides were superior on the Lee-Clark test at the beginning of the school year and the analysis of covariance indicates they maintained their superiority at the end of the school year.

There is some indication that teachers with aides were somewhat more successful than teachers without aides in helping the lower level pupils improve their reading ability.

QUESTION V

Will there be a positive relationship between the time teachers with or without aides spend in instructionally related activities and pupil achievement?

Hypothesis 11. For classes with or without aides there is no relationship between the ranking of classes on Metropolitan Achievement Reading sub-test means and:

a. Teacher ranking on time in Clerical activity.

b. Teacher ranking on time in Routine activity.

c. Teacher ranking on time in Total Group Instruction.

d. Teacher ranking on time in Differentiated Instruction.

e. Teacher ranking on rating given Differentiated Instruction.

For the eight teachers with aides Kendall Rank Correlations between class rank on Metropolitan Reading scores and teacher rank in time in Clerical Activities produced an $r = .04$, in Routines an $r = .21$, in Total Group Instruction an $r = .00$, in Differentiated Instruction an $r = .00$ and in rating given Differentiated Instruction an $r = .04$. No correlations were significant at the .05 level.

For the ten classes without aides Kendall Rank Correlation Coefficients between class rank on Metropolitan Reading scores and teacher rank in time in Clerical Activities produced an $r = .17$, in Routines an $r = .28$, in Total Group Instruction an $r = .11$, in Differentiated Instruction an $r = -.37$ and in rating of Differentiated Instruction an $r = -.44$. Only $r = -.44$ was significant at the .05 level.

On the basis of the Kendall Rank Correlation Coefficients hypothesis 11 was accepted at the .05 level. There was no evidence to support the proposition of a positive relationship between the way teachers spend their time and pupil achievement, as measured

by the Metropolitan Achievement Test class reading means.

CONCLUSIONS

This study was limited to an examination of observed teacher and aide activity as revealed by the "Teacher and Aide Activity Observation Instrument" designed for this study and does not evaluate other aspects of the classroom situation however important these may be. The limited number of teachers in the study (20) and the forced selection of teachers from operational classrooms also precludes generalizations to other populations. In addition the observational samples of teacher behavior were made during the first hour of instruction in the morning and may not represent an accurate description of the teachers and/or aides activities over the total school day or school year.

Previous studies such as the Bay City project, the Yale-Fairfield Study and the Bank Street College of Education studies support the contention that teachers who have aides are able to devote greater time to more critical teaching tasks.[111] The teachers with aides in this study did not provide more individual or small group instruction, at least for the first hour of instruction of the school day. The differences between the findings in this study and

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[111]Park, loc. cit., Howell, loc. cit., Bowman and Klopf, loc. cit.

the ones mentioned above may be accounted for by the fact that the above studies depended upon teacher questionnaires for their information while this study recorded the observable classroom behavior of teachers. As Schmitthousler and Perkins found there is considerable disagreement between what duties and activities teachers say they can delegate and what they share in the privacy of their classroom.[112] Regardless of the reasons, teachers with aides in this study did not account for more teaching time or give more individual or small group help to children. On this basis, and for this sample of teachers, the value of aides to releave teachers of non-teaching duties, so teachers can "teach" can be questioned.

The findings from this study indicate that teachers with and without aides had similar classroom operational patterns. The reasons for this close similarity of behavior may be related to prior training and practice, institutional demands, the lack of in-service training or a combination of these factors.

The teachers in this study who had aides received only part of a one day in-service training program devoted to the use of aides. This fact may help to account for the finding that there was little uniformity among the activity of the ten aides. It would seem that how the aide were used represented the Teachers'

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[112]Schmitthousler, loc. cit., Perkins, loc. cit.

and/or the Aides' conception of the aides proper function within the classroom setting.

The findings of this study strongly suggest that if a difference between teachers with aides and teachers without aides is to be expected then both teachers and aides will have to be trained for their respective and complementary roles.

All of the schools in this study were located in a geographical poverty area as defined by the Federal Elementary and Secondary Education Act of 1965 and were elegible for Title I funds. The teachers with aides were those whose children had been identified as having the greatest need in the area of reading and whose school administration had shown the greatest initiative in applying for Title I funds. The preceding factor is important when we consider the evidence from this study that the lower ability children in classes with aides benefited somewhat more in reading than did the other children in the same classes.

The lack of differences in time factors between teachers with and without aides makes the comparison of pupil achievement between groups a moot point.

A comparison of the twenty teachers time in Total Group and Differentiated Instruction with the end of the year achievement of pupils failed to show any significant relationships.

This factor points out the nebulous nature of using a single criterion of teacher behavior to relate to pupil achievement and also relates to the kinds of problems that Meux discusses in his "Studies of Learning in the School Setting".[113]

The "Teacher and Aide Activity Observation Instrument" developed for use in this study does demonstrate a practical and objective method for securing information concerning the way the classroom teacher and/or aide functions. This instrument did provide a reliable timed measure of the diversity of activities which were carried on by the classroom teacher and an accurate record of the activities of the teacher's aide. If more definitive roles for the classroom teacher and the aide are developed this instrument can be utilized as one way of determining the degree to which the teacher and aide are carrying out their expected roles.

RECOMMENDATIONS

The results of this investigation suggest several areas for further research:

1. The use of this instrument to study teacher and aide activity at other times of the school day and at other grade levels.

2. An examination of the activities of teachers and aides

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[113]Milton O. Meux, "Studies of Learning in the School Setting," Review of Educational Research - Growth Development and Learning, (37:539-562, December, 1967).

before and after the time scheduled for instruction.

3. Development of in-service training programs for teachers, aides and administrators and suggested methods for implementation of aide programs.

4. Experimental designs which permit a comparison of different aide uses with pupil achievement.

Adequate decisions concerning the proper role of teachers, aides, media and machines will require much more complex research on the role teachers actually fulfil and on their capacity to learn new roles and develop the flexability to modify their behavior as teachers.

5. Clarification of the expected role of the teacher and the aide.

At the present time it is generally accepted that the classroom teacher should be responsible for "professional" activities and the aide should be responsible for "non-professional" duties. It appears crucial at this point for these terms be clarified and for the more critical teaching tasks to be identified, if effective evaluation of the role of the teacher and/or the aide is to be achieved.

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APPENDIX A

DEMOGRAPHIC INFORMATION ON

BALTIMORE COUNTY

MARYLAND

APPENDIX A

DEMOGRAPHIC INFORMATION ON BALTIMORE COUNTY, MARYLAND

Baltimore County, Maryland

Baltimore County, Maryland is a single governmental unit of 610 square miles partially surrounding Baltimore City on the south and extending to the Pennsylvania border on the north. Baltimore County is the third largest political subdivision in the State of Maryland with a 1969 population of over 630,000. A rapidly growing area, its population doubled during the 1960's and is expected to reach the one million figure by the end of the 1970's.

In 1958 the electorate voted to change the county government from county commissioners to a charter form of home rule. With no incorporated towns or cities within its boundaries, the county under the charter is governed by a county executive and a legislature of seven county councilmen. Each councilman represents one of the seven districts of the county, but all seven are elected county wide as is the county executive.

Baltimore County is widely diversified in its industry. The southeastern area of the county bordering Baltimore City and the Chesapeake Bay is the most industralized with a large steel mill, associated industries and several other large heavy manufacturing companies nearby. Other light industries are scattered throughout the county along its major thoroughfares, most of these in industrial parks developed within the last ten years.

Baltimore County is the major suburban area of Baltimore City and an estimated 25% of the working force commutes daily to their jobs in the city.[1] The outlying sections of the county are still largely rural with farming and dairying still an important but declining industry.

With a 1963 per capita income of $2,320 compared to the state average of $2,314 Baltimore County is often classified as a predominantly white suburban middle class community.[2]

Being a single governmental unit all municipal services, fire protection, police protection and public schools are provided on a county-wide basis.

School Systems in Maryland

There are twenty-four school systems in the State of Maryland; the twenty-three counties and Baltimore City. All the county Boards of Education except one are appointed by the governor of the State of Maryland. These appointments are usually made following consultation with the local political leaders and sometime upon the recommendation of citizens groups. The one county exception has an elected school board and Baltimore City whose mayor appoints the Board of School Commissioners. No school system including Baltimore City has fiscal

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[1]Estimate given the author by the Baltimore County, Maryland Office of Economic Development.

[2]Maryland Department of Economic Development, Community Economic Inventory; Baltimore County, Maryland, (Annapolis, Industrial Development, Commission of Baltimore County, Maryland, March 1965), p. 6.

autonomy. Although the local boards of education are by state law responsible for the operation of schools each Board must submit yearly operational budget requests to the county and city governments and compete for their share of the general tax dollar.

Baltimore County

The Baltimore County Board of Education has a nine member board, appointed by the Governor, which annually elects its own president and vice-president. The superintendent of schools acts as the secretary and assistant treasurer for the board and is its executive officer. During the last few years appointment of members to the board has been greatly influenced by a citizens nominating committee which has conducted hearings, held forums and voted upon the 3 or 4 candidates to be recommended to the governor. There has been increased support from prominent citizens, including the County Executive, for an elected school board, but support for fiscal autonomy for the board of education has been slight.

During the 1968-69 school year the Baltimore County school system had an enrollment of 62,212 elementary and 55,502 secondary school students; a total enrollment of 122,236 including 4,694 kindergarten pupils. This enrollment was housed in one hundred one elementary schools, four special education schools and thirty-nine secondary schools. The professional staff included 6,238 teachers and department chairmen, 334 principals and vice-principals and 195 central office personnel.

APPENDIX B

STAFFING GUIDE LINES FOR BALTIMORE COUNTY ELEMENTARY SCHOOLS 1968-1969

APPENDIX B

GUIDELINES FOR STAFFING BALTIMORE COUNTY ELEMENTARY SCHOOLS

1968 - 1969

SCHOOL CLASSIFICATION	TEACHERS KINDERGARTEN	TEACHERS CLASSROOM	PRINCIPAL	VICE PRINCIPAL	SPECIAL AREAS						PHYS ED	TEACHER AIDES	LUNCHROOM AIDES 2 per sch.
					ART	COR RDG	GUID	LIB	MI	MV			
(30) Rooms	1 per 50 kindergarten pupils	1 per 30 pupils GR 1-6	1	1	1	1	1	1	1	1	1		2.5 hrs.
(24) Rooms	"	"	1	1	1	.5	1	1	.5	1	1		2.5 hrs.
(18) Rooms	"	"	1	1	.5	.5	.5	1	.5	.5	1		2.0 hrs.
(12) Rooms	"	"	1		.5	.5	.5	1	.5	.5	.5		1.5 hrs.
County												25	

Changes from 1967-68 Guidelines: Guidance for 24 room school from .5 to 1.0
Teacher Aides increased from 12 to 25
Lunchroom aides doubled in number - same period of time

(11-1-67)

APPENDIX C

HISTORY OF AIDE PROGRAMS IN BALTIMORE COUNTY PUBLIC SCHOOLS

APPENDIX C

HISTORY OF AIDE PROGRAMS IN BALTIMORE COUNTY SCHOOLS

Full time aides for classroom teachers were first introduced into the Baltimore County school system in 1955 with the opening of the first school for severely mentally retarded. Each special education classroom teacher was assigned a full time aide to assist with the education of 10 - 15 children. The responsibility for the selection and training of the aides was assigned the principal of the school. At the present time the selection, interviewing and hiring of aides is done by the personnel office of the school system. The training and utilization of special education aides is still the responsibility of the local school administrator and classroom teacher.

During the 1968-69 school year there were 38 aides assigned to special education classroom teachers in the four special education schools. Teachers in regular schools who were teaching children classified as having behavioral and learning problems are also assigned full time aides. There were 10 such aides in this latter category during the 1968-69 school year.

Other types of human resources for classroom teachers were instituted in the early 1950's. Counseling teachers in physical education, art and music were hired to assist classroom teachers in conducting these three phases of the instructional program. During the 1968-69 school year there were 97 physical education teachers, 70 art

and 73.5 vocal music teachers. The direction of these programs has changed from assistance to the classroom teacher to the special teachers having major responsibility for this part of the instructional program.

In the mid 1950's part or full time librarians were assigned to all elementary schools. Each librarian was given a half-day or a full day clerical aide to take care of clerical activities necessary in the operation of the library. Presently all 12 room or larger elementary schools have full time librarians with clerical assistance from parents and/or one day from the school secretary. The scope of the librarians activities has been enlarged to include all audio-visual materials the school utilizes, moving toward the concept of the library as a learning center. During the 1968-69 school year there were 101.5 librarians assigned to elementary schools in Baltimore County. In the same period described above, corrective and remedial reading teachers programs were instituted in the elementary schools as were the services of guidance counselors. In 1968-69 there were 55 corrective and remedial reading teachers and 57 guidance counselors assigned to the elementary schools staffs in Baltimore County.

The 1968-69 school year saw three media specialists assigned to elementary schools on a pilot basis. The direction and scope of librarians activities as they relate to other learning media, media specialists, and Instruction Television is still under study in the school system.

Clerical assistance for classroom teachers has shown continuous growth since World War II when the first office secretaries were

assigned to elementary schools. These secretaries were to provide assistance to teachers in typing and duplicating instructional materials. The increased demands of the principals office permitted the office secretary little time to assist teachers and many schools used parent volunteers to help with clerical activities. In the 1959-60 school year the Board of Education adopted a policy of assigning teachers' secretaries on the basis of 2 days a week for 12-17 room schools, 4 days for 18-23 room schools and full time for schools with 24 rooms or larger. The teacher secretaries duties are supervised by the office secretary and include typing and preparing materials for teachers use, typing reports on children, handling correspondence relating to children and assisting teachers in other instructional related activities. In addition to this secretarial help for teachers, the school offices are now asked to handle the collection of money for pictures, savings stamps and other school functions of this type, as well as taking care of the monthly summary of school attendance as required by law.

In 1966 the Maryland State legislature passed a law requiring all school systems to provide each teacher with a daily thirty minute duty free lunch period. During the 1968-69 school year there were slightly more than 200 lunch room aides employed by the school system. These aides were assigned as follows:

12 room and under	2 aides for 1.5 hours each
13 rooms to 23 rooms	2 aides for 2.0 hours each
24 rooms and up	2 aides for 2.5 hours each

The selection, training and supervision of lunch room aides was the primary responsibility of the local school administration with

assistance given by the Office of School Lunch Programs.

At the beginning of the 1968-69 school year the Superintendent and his Staff decided to provide aides to schools where the school was over crowded and where there were no classrooms or temporary quarters available to house the surplus population. For each fifteen pupils over the average class of thirty, a school could receive a full time aide. On this basis 43 full time and four half time aides were assigned to 32 elementary schools. Only a few of these aides were assigned to one teacher, most were assigned to a grade or often to a group of teachers. The selection and hiring of these aides could be done by the local school, but the personnel office also recruited, interviewed and hired aides for individual schools. The training and utilization of these aides were the responsibility of the local schools. This experimental program was to be evaluated at the conclusion of the 1968-69 school year.

In the 1965-66 school year the school system received an ESEA grant to conduct a Title I "Educational Development Project." This program focused upon those students who were identified as meeting the poverty criteria established by the Federal Government as well as indications of poor scholastic work, primarily reading deficiencies.

In the second year of operation in 1966-67, the EDP program employed 13 full time aides who were assigned to programs at the Junior High School level. These aides have continued even though the projects' focus from 1966-67 to 1968-69 changed from grades 1-9 to grades 1-4. In the 1967-68 school year 18 full time and 11 part time aides were assigned to elementary school classroom teachers working with project

children and this increased to 27 full time and 33 part time aides in the 1968-69 school year.

One emphasis of the Federal Government for operation of Title I programs has been to involve local parents in the school program. Therefore, aides were to be drawn from the local community and if possible should meet the poverty criteria. All the aides used in this project were local persons but only one-half meet the poverty criteria. The selection and hiring was performed jointly by the local school administrator, the EDP project director and the personnel office. The day to day supervision of the aide was left to the local school administrator and teacher. The Director of this project in the 1967-68 school year provided the first county training program for aides; a one day training session for teachers and aides. In 1968-69 a three day training session was held for all aides working in the project. This training session was jointly planned by the Project Director and a committee of project classroom teachers. In addition, a part of the 3 day in-service training program of the project classroom teachers covered utilization of aide services.

During the 1968-69 school year the Baltimore County school system appointed a county-wide committee to study the use of aides and make recommendations concerning the selection of aides, their training and their utilization in schools. The results of this committee's work is not yet available.

The Baltimore County school system has shown continuous concern for the workload placed on classroom teachers and has systematically

worked toward the reduction of non-teaching duties. As evidence of this all teachers in 1968-69 could receive some help in clerical duties, money collection activities had been taken out of the teachers hands and all teachers received a 30 minute duty free lunch with little or no lunch room supervision responsibilities. In addition to this most classroom teachers had three or more free periods a week when their classes were being taught by the art, music or physical education teacher.

During the 1968-69 school year there were 118 full time and 37 part time classroom teacher aides working in three major areas, special education, over-populated schools and the ESEA Title I Educational Development Project. There appears to be little recognition of the inter-related nature of these programs and only slow recognition that the assignment of additional human personnel to work with classroom teachers is a complex process which deserves more serious consideration. Only in the Educational Development Project has interrelated roles of classroom teacher and the aide been given serious consideration.

APPENDIX D

CLASSROOM ACTIVITY SURVEY

CLASSROOM ACTIVITY SURVEY

Dear Teacher:

Listed below are samples of activities that can provide for differences in ability of children, either individual or by group. Would you check the activities that you feel are appropriate and/or useful and list any other activities which you would recommend or use if you had the time and facilities.

Please give grade _____ Number of boys_____; girls_____

Check each of the following activities you feel are appropriate:

Reading Groups	_____	Others (use back of sheet if necessary)
Library Reading Center	_____	_____
Listening Center	_____	_____
Arithmetic Center	_____	_____
Language Center		_____
Phonetics	_____	_____
Word or Sentence Structure	_____	_____
Arts and Craft Center	_____	_____

Your cooperation is important. A more comprehensive project will attempt to look at the total varied role of the classroom teacher. Please do not sign your name.

Thank you.

Sincerely,

James L. Miller
Supervisor of Physical Education

JLM/cs

Return to: James L. Miller
Supervisor of Physical Education
Board of Education of Baltimore County
Allegheny Office
Towson, Maryland 21204.

APPENDIX E

SAMPLE MEMO TO PRINCIPALS CONCERNING

CLASSROOM ACTIVITY SURVEY

BOARD OF EDUCATION OF BALTIMORE COUNTY
Towson, Maryland 21204

TO: Selected Elementary School Principals

FROM: James L. Miller
Supervisor of Physical Education

DATE: November 11, 1968

RE: Project Survey

I am presently working on a project which involves objectively measuring the functions classroom teachers perform. As part of this project, I wish to identify those activities the classroom-teacher plans for and/or provides that will take into account differences in individual or group. The attached form gives some suggestions and is self-explanatory.

Would you select one knowledgeable teacher from grades one, two or three and ask if he would voluntarily complete the form and return it to me.

Thank you for your help and consideration.

JLM/cs

Enclosure

APPENDIX F

SAMPLE INITIAL LETTER TO PRINCIPALS OF TWENTY SCHOOLS SELECTED FOR USE IN THE STUDY

BOARD OF EDUCATION OF BALTIMORE COUNTY

160

TOWSON, MARYLAND - 21204

April 22, 1969

Mr. F. Peter Galley, Principal
Victory Villa Elementary School
Honeycomb and Compass Roads
Baltimore, Maryland 21220

Dear Mr. Galley:

In the near future, Mr. James L. Miller, Supervisor from the Office of Physical Education, will be requesting an opportunity to meet with you and discuss a research project he is presently conducting. The project is structured to investigate the influence that aides have on the role and function of first grade classroom teachers. The data necessary for the investigation will be obtained from classroom observations -- observations Mr. Miller, hopefully, can schedule with you during the month of May. The observations will be concerned with the content and techniques employed by classroom teachers with and without full-time aides.

Along with providing important information on the influence of full-time teacher aides, the observational information will provide some of the data for Mr. Miller's doctoral project at the University of Maryland.

The project was approved by the Research Advisory Committee for the county. I would like to request that you cooperate with Mr. Miller in this regard.

Should there be questions please call me at 821-6900.

Thank you for your cooperation in this matter.

Sincerely,

George T. Gabriel
Director
Office of Educational
Research

GTG:jb

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MRS. JOHN M. CROCKER, VICE-PRESIDENT
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H. EMSLIE PARKS
RICHARD W. TRACEY, V.M.D.
MRS. RICHARD K. WUERFEL
WILLIAM S. SARTORIUS, SUPERINTENDENT

APPENDIX G

SAMPLE CONFIRMING LETTER SENT TO PRINCIPALS OF SCHOOLS IN THE STUDY

May 7, 1969

Mr. Stewart Cushwa
Seneca Elementary School
545 Carrollwood Road
Baltimore, Maryland 21220

Dear Mr. Cushwa:

I certainly appreciate the cooperation and courtesy you have shown to me in the "Teacher and Aide Function" study. Dr. Brager and I will observe Mrs. Yenaro and her aide on Friday, May 16, 1969, 8:45 a.m.-9:45 a.m.

Of course, the observation would not be held if the teacher should be absent or if some special program should arise. A call to the office VAlley 5-7200, extension 227 or 230, or at home 828-4038 would be appreciated in such cases.

As I mentioned in our telephone conversation I will also be utilizing data on the children; the Lee-Clarke reading readiness scores and the reading section of the Metropolitan Achievement Test, Form A. I would also like to have the occupational status of the wage earner of the family of children in this room. The wage information does not have to be associated with a particular child. For example: a list showing four laborers, one auto mechanic, one electrician, two waitresses, one teacher and so on would be very satisfactory. The Lee-Clarke scores by child and occupational status if available could be picked up the day of the observation or sent in to my office at a later date.

Dr. Brager of the Research Office has forwarded to you a list of children that were in the summer pre-school program that he would like to have tested using the Metropolitan Achievement Test. In addition he is sending to you enough test forms to cover all the children in the classroom in this project. Some or all of the children in the pre-school project may be in the classroom in this project. Could you mark each test folder with the classroom teacher's name and return <u>all</u> the test folders to Dr. McCauley's Office for scoring.

Please accept my thanks for your cooperation. It is greatly appreciated.

Sincerely,

James L. Miller
Supervisor of Physical Education

JLM/cs

APPENDIX H

LEE-CLARK AND METROPOLITAN ACHIEVEMENT TEST

DATA ON PUPILS IN THE STUDY

APPENDIX H

LEE-CLARK AND METROPOLITAN ACHIEVEMENT TEST

DATA ON PUPILS IN THE STUDY

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 1A	Control Number 1504								
01	34				03	23			
02	33				04	25			
05	42				08	28			
06	57				09	42			
07	41				10	21			
13	40				11	44			
14	32				12	43			
15	42				16	46			
18	46				17	37			
					19	37			
School 2A	Control Number 1511								
01		30	24	23	03	40	30	33	34
02	40	27	34	31	04	43	33	34	37
05	38	33	38	27	06	33	42	39	30
07		53	48	46	08	35	48	37	31
09	41	50	38	38	10	45	45	41	31
11	53	57	52	49	12	43	65	47	46
13	30	38	38	37	16	43	65	59	49
14	46	48	38	37	17	21	32	32	34
15	33	59	51	52	18	46	52	43	41
19	19	38	29	38					
School 3A	Control No. 1521								
01	15				12	14			
02	31				13	46			

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 3A	(continued)								
03	19				14	45			
04	20				15	31			
05	21				16	21			
06	14				17	34			
07	30				18	20			
08	18				19	30			
09	14				20	15			
10	15				21	21			
11	31				22	30			
					23	15			
					24	29			
					25	44			
					26	31			
School 4A	Control Number 1502								
01	42	30	36	27	06		33	34	36
05	23	44	45	36	08	23	30	33	30
07	42	36	39	37	09	25	33	29	27
12	23	29	30	35	10	25	27	36	36
13	43	29	26	30	11	27	27	27	35
15	27	37	30		14	15	26	32	27
20	16	30	34	35	16	17	38	33	22
24	53	49	46	49	17	33	26		38
					18	31			38
					19	18	36	37	28
School 5A	Control Number 1515								
12	29	32	37	36	01		45	46	42
13	22	42	48	43	07	23	49	52	46

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 5A	(continued)								
14	23	56	68	58	08	34	59	59	59
15	31	56	61	56	09	28	46	50	43
16	20	45	51	42	10	26	49	48	44
17	31	57	57	48	11	16	48	54	37
18	24	45	44	49					
19	33	44	48	46					
20	20	48	54	41					
21		37	42	40					
22	21	49	50	44					
23	15	46	48	45					
26	58	41	41	41					
School 6A	Control Number 1203								
06	47	40	36	44	01	56	47	43	51
07	29	43	42	38	02	49	54	57	57
08	26	27	24	37	03	59	49	50	49
09	33	53	51	41	04	49	51	46	36
10	31	29	33	43	05	25	46	47	46
11	37	52	49	41	45	54	26	34	41
12	28	46	42	32	46	48	44	42	41
34	58	30	33	36					
35	37	33	37						
36	49	34	40	45					
39	36	52	49	46					
41	26	53	50	53					
42	59	44	40	41					

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 7A	Control Number 1520								
01	2	15	35	20	03	14	42	42	38
02	12	43	40	35	06	20	45	51	42
04	19	25	27	40	08	27	45	46	49
05	19	33	30	32	14	31	57	57	58
07	21	49	50	44	15	31	29	33	43
09	28	56.	57	55	17	36	59	52	41
10	29	43	32	38	20	47	56	55	63
11	30	32	30	42					
12	30	31	41	43					
13	30	38	38	37					
16	34	29	34	45					
18	37	33	37	39					
19	41	50	38	50					
21	50	52	48	36					
School 8A	Control Number 1519								
01	25	46	49	25	07	16	32	37	38
02	36	50	46	36	08		39	38	34
03		30	83	30	10	44	51	48	32
04	41	40	34	38	13	43	38	42	36
05	14	33	36	25	15	50	53	49	22
06	35	32	40	32	16	32	47	37	34
11	46	42	38	36	17	35	44	64	45
12	35	24	34	27	19	38	46	41	38
14		44	48	34	25	49	34	34	32
18	32	42	45	32					
20	29	33	34	27					
21	43	29	34	25					

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 8A	(continued)								
22	16	39	43	30					
23		26	26	28					
24	36	37	44						
26	34	42	42	37					
27	33	45	42	40					
28	40	36	41						
29	30	36	22						
30	35	25	24	22					
School 9A	Control Number 1501								
01	22	22	17	14	03	45	15	16	11
02	25	12	12	14	04	47	14	22	20
05	50	8	12	15	09	51	30	27	26
06	55	31	31	36	10	44	21	21	24
07	41	12	9	14	12	40	11	10	15
08	56	20	22	15	13	39	10	15	12
11	23	10	14	16	15	44	22	5	11
14	47	19	13	4	16	42	18	12	11
17	50	21	16	19	19	45	29	27	18
18	45	22	25	13	20	46	9	14	20
21	50	30	27	27	24	32			
22	20	4	9	11	25	50	21	22	15
23	38	13	30	9	26	33	7	8	7
28	30	3	5	14	27	32	7	8	7
School 10A	Control Number 1505								
01	21	51	51	34	04	16	30	43	40
02	17	30	27	31	06	28	34	38	43
03	35	22	40	41	07	29	27	37	32
05	18	33	40	28	09	18	30	45	35

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 10A (continued)									
08	06	44	46	35	15	15	41	51	41
10	18	26	32	37	17	23	22	26	41
11	20	30	41	37	18	33	50	51	42
12	34	37	36	38	22	22	26	32	30
13	31	24	37	42					
14	29	39	36	32					
16	07	23	29	31					
19	24	23	29	37					
20	16	36	46	30					
21	21	40	43	36					
School 1	Control Number 1517								
02	58	51	51	50	01	61	50	54	51
04	53	47	46	46	03	59	38	30	32
05	42	43	41	43	06	61	56	61	60
07	31	36	30	36	08	61	47	46	46
11	41	36	34	30	09	21	51	52	49
12	35	48	48	48	10	57	45	47	41
15	39	36	40	41	13	21	43	48	44
17	34	29	34	40	14	32	32	33	41
21	60	51	55	60	16	52	39	45	44
22	40	39	38	44	18	54	36	41	37
					19	61	37	39	45
					20	46	36	34	37
					23	52	43	47	38
School 2	Control Number 1206								
06	36	46	39	45	10	37	48	41	44
08	49	41	41	44	11	56	45	43	46

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 2 (continued)									
09	47	33	38	45	12	55	53	55	53
13	47	42	49	52	19	54	54	52	51
15	51	26	30	35	20	49	56	55	54
16	43	33	43	41	21	54	56	52	54
17	47	34	30	31	23	54	56	57	52
18	41	54	61	52	24	52	57	64	61
22	41	52	54	52	25	55	56	61	56
27	57	53	51	40	26	54	65	64	56
28	43	54	55	51					
29	43	27	38	31					
School 3	Control Number 1213								
02	09	22	23		01	18	30	38	41
08	28	52	59	51	03	26	30	29	37
09	24	32	38	36	04	36	30	36	43
10	24	34	32	35	05	25	37	37	37
11	23	33	39	36	06	24	46	46	35
12	30	30	30	34	07	17	25	27	40
13	26	33	32	28					
17	17	33	30	32					
18	24	45	45	41					
19	05	32	37	34					
20	20	39	59	38					
27	17	39	36	40					
28	19	37	46	32					
School 4	Control Number 1508								
04	15	49	45	44	01	23	32	34	38
05	35	57	51	49	02	39	52	49	53

. PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 4 (continued)									
06	33	57	49	56	03	35	59	48	54
07	29	52	61	49	08	30	42	40	43
10	23	33	39	46	09	22	40	38	42
12	15	42	42	38	11	13	43	40	35
14	34	52	50	49	13	37	44	42	44
15	31	46	44	50	20	30	37	36	42
16	28	46	43	36	21	38	56	57	61
17	37	44	41	36					
18	37	39	43	46					
19	24	40	34	46					
22	38	47	42	44					
School 5	Control	Number	1510						
01	51	39	37	43	02	51	39	37	43
03	48	27	33	37	05	47	41	46	43
07	51	47	46	43	06	50	54	52	51
08	59	47	47	46	10	47	43	40	38
09	58	44	43	45	13	40	49	52	49
11	56	41	45	41	14	37	30	30	30
12	51	43	44	40	16	38	36	44	46
15	25	27	30	25	19		53	50	46
17	30	33	27	41	20	47	30	40	38
18	54	43	40	56	21	60	49	54	49
23	48	34	36	38	22	56	48	50	46
25	59	43	41	44	24	30	37	09	41
27	34	44	36	40	26	59	48	52	49
28	34	44	40	36					

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 6	Control Number 1512								
09	40	44	45	42	02	48	47	44	27
10	50	42	42	46	03	46	38	33	23
23	42	50	54	43	04		52	52	30
24	43	52	51	48	26	47	48	51	45
25	43	40	39	38	27	47	50	51	37
28	15	42	40	40	31	48	48	57	40
29	56	50	54	51	32	32	41	41	36
30		46	44	46	33	47	42	41	37
35	48	44	50	40	36	43	30	40	40
					37	50	44	42	38
					38	50			
School 7	Control Number 1509								
10	43	38	43	19	02	38	36	38	32
14	29	33	32	31	03	29	38	41	23
16	37	29	32	34	04	38	36	34	41
17	39	34	36	35	05		29	29	36
18	43	53	43	20	06	35	41	37	32
19	47	46	44	25	07	41	46	33	34
20	34	37	34	25	08		24	30	30
22	29	49	43	20	09	43	26	38	28
23	46	46	39	27	21	43	56	49	25
24	43	44	38	19					
25	43	43	46	20					
26	43	53	43	28					
27	41	54	54	29					
28	28	38	30	23					
29	41	36	36	23					
30		46	43	20					

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 8	Control Number 1525								
08	03	00	39	00	09	12	00	21	00
14	35	41	52	27	27	56	49	46	41
16	35	45	43	47	28		46	46	34
20	27	42	41	38	29	36	40	40	43
21	23	44	47	42	31		41	47	34
30		40	43	38	36	40	39	46	40
32	25	30	32	42					
33	27	40	43	37					
34	37	45	46	37					
35	24	33	49	28					
37	34	37	39	31					
School 9	Control Number 1406								
08	39	40	29	32	01	38	48	45	46
09	45	29	43	28	02	44	46	59	38
10	46	42	30	37	03	42	37	38	49
11	44	39	30	36	04	37	42	39	45
12	43	46	47	38	05	33	47	45	38
13		34	39	33	06	31	42	34	44
14	46	59	59	49	07	45	42	37	36
15	36	49	48	45					
16	35	29	34	44					
17	37	42	40	31					
18		34	30	25					
19	42	48	48	46					
20	33	45	42	35					
21	48	25	27	53					

PUPIL STANDARDIZED TEST DATA (continued)

BOYS					GIRLS				
		MAT					MAT		
Pupil No.	Lee-Clark	WK	WD	R	Pupil No.	Lee-Clark	WK	WD	R
School 9 (continued)									
22	46	53	64	46					
23	15	54	54	40					
24	37	46	41	44					
25	37	46	41	44					
26	31	44	41	42					
School 10	Control Number 1531								
16	50	51	51	45					
17	39	32	39	37					
18	54	33	40	30					
19	53	62	61	53					
20	56	62	68	63					
21	46	44	41	45					
22	31	50	47	41					
23	45	54	54	60					
24	38	47	50	46					
25	40	48	43	42					
26	40	59	57	56					
27	44	44	37	46					
28		38	30	41					
29	46	52	45	45					
32	55	59	55	56					
38	49	65	61	70					
39	58	51	49	54					
40	28	29	37	41					
41	29	29	32	46					
42	36	48	40	44					
43	21	43	32	43					

SELECTED BIBLIOGRAPHY

A. BOOKS

Allen, Dwight W., A Differentiated Staff: Putting Teaching Talent to Work, Occasional Papers No. 1, National Commission on Teacher Education and Professional Standards, Washington: National Education Association, 1967.

Anastasi, Anne, Psychological Testing, New York: The McMillan Co., 1961.

Bair, Medell, and Richard G. Woodward, Team Teaching in Action, Boston: Houghton Mifflen Co., 1964.

Becker, H. A., J. C. DeVita, F. Drowne, Your New Career as a Teacher Aide, New London: Croft Educational Services, 1968.

Beggs, David W., III and Edward G. Buffie, Bold New Venture, Bloomington: Indiana University Press, 1967.

Bellack, Arno A., and others, The Language of the Classroom, New York: Teachers College Press, Columbia University, 1966.

Benson, Charles E., The Economics of Public Education, Boston: Houghton Mifflen Co., 1961.

Bowman, Gorda W. and Gordon J. Klopf, New Careers and Roles in the American School, New York: Bank Street College of Education, 1967.

Callahan, Raymond, Education and the Cult of Efficiency, Chicago: University of Chicago Press, 1962.

Dixon, Wilfred J. and Frank J. Massey, Jr., Introduction to Statistical Analysis, New York: McGraw-Hill Book Co., Inc., 1957.

Feingold, S. Norman and Sal Swordloff, Occupations and Careers, New York: McGraw-Hill Book Co., 1969.

Hoffman, Loulis W. and Martin L. Hoffman, Review of Child Development Research, Volume 2, New York: Russell Sage Foundation, 1966.

Howell, John J., Teacher Assistants: An Abridged Report, New Haven: Yale University, 1959.

Lehman, E. L., Testing Statistical Hypotheses, New York: John Wiley and Sons, Inc., 1959.

Mitchell, Ronald, (ed.), Annual Report, 1962-63: Claremont Teaching Team Program, Claremont: Claremont Graduate School, 1963.

Otto, Henry J. and David C. Sanders, Elementary School Organization and Administration, New York: Appleton-Century Crofts Co., 1964.

Park, Charles E., A Cooperative Study for the Better Utilization of Teacher Competencies: Second Printed Report, Mount Pleasant: Central Michigan College, 1955, Final Report 1960.

Perkins, Byce, Factors Which Have Influenced the Development of the Paraprofession in the Elementary Schools of Norwalk, Connecticut, New York: New York University, 1961.

Powledge, Fred, New Careers, Real Jobs and Opportunities for the Disadvantaged, New York: Public Affairs Committee, 1968.

Riessman, Frank and Arthur Pearl, New Careers for the Poor, New York: Free Press, 1965.

Siegel, Sidney, Nonparametric Statistics for the Behavioral Sciences, New York: McGraw-Hill Book Co., Inc., 1956.

Simon, Anita and E. G. Boyer, Mirrors for Behavior: An Anthology of Classroom Observation Instruments, Research for Better Schools Inc., Philadelphia: The Center for the Study of Teaching, 1961.

Simon, Herbert A., Administrative Behaviors: A Study of Decision Making Process in Administrative Organization, New York: Free Press, 1951.

Shaplin, Judson L. and Henry F. Olds, Jr., (Eds.), Team Teaching, New York: Harper and Row Co., 1964.

Travers, Robert M. W., An Introduction to Educational Research, New York: Macmillan Co., 1964.

Van Dalen, Deobold B. and William J. Meyer, Understanding Educational Research - An Introduction, New York: McGraw-Hill Book Co. Inc., 1966.

B. PUBLICATIONS OF GOVERNMENT, LEARNED SOCIETIES, AND OTHER ORGANIZATIONS

American Hospital Association, Careers in Hospitals, Chicago: American Hospital Association, 1963.

Association for Supervision and Curriculum Development, Human Variability and Learning, Washington: Association for Supervision and Curriculum Development, 1961.

Association for Supervision and Curriculum Development, Individualizing Instruction, Washington: Association for Supervision and Curriculum Development, 1964.

Association for Supervision and Curriculum Development, New Insights and the Curriculum - 1963 Yearbook, Washington: National Education Association, 1963.

Department of Classroom Teachers, The Classroom Teachers Speaks on His Supportive Staff, Washington: National Education Association, 1967.

Department of Classroom Teachers, Time to Teach: Action Report, Washington: National Education Association, 1966.

Educational Testing Service, Annual Report 1965-66, Princeton: Educational Testing Service, 1967.

Maryland State Department of Education, Design for Planning the Program of the Elementary School, Baltimore: Maryland State Department of Education, 1965.

Maryland State Department of Education, Facts About Maryland Schools, Baltimore: Maryland State Department of Education, 1969.

National Commission on Teaching, Educational and Professional Standards, Auxiliary School Personnel, Washington: National Education Association, 1967.

National Education Association, Teacher Aides in Large School Systems, Educational Research Circular No. 2, Washington: April, 1967.

U.S. Department of Labor, Area Wage Survey - The Baltimore Metropolitan Area, Bulletin 1530-30, Washington: U.S. Government Printing Office, November, 1966.

U.S. Department of Labor, Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization and Training, Washington: U.S. Government Printing Office, 1965.

U.S. Office of Education, Four Case Studies in Programmed Instruction, New York: Fund for the Advancement of Education, 1964.

U.S. Office of Education, "Guidelines, Special Programs for Educationally Deprived Children", Washington: U.S. Government Printing Office, October 8, 1965.

C. PERIODICALS

Alexander, S. Kern, "What Teacher Aides Can - and Cannot Do," Nations Schools, 82:2, August, 1968.

Anderson, Robert H., Ellis A. Hagstrom and Wade M. Robinson, "Team Teaching in the Elementary School," School Review, 68:3, Spring, 1960.

Anderson, Robert H., "Organizational Character of Education: Staff Utilization and Deployment," Review of Educational Research, 34:4, November, 1964.

Association of Classroom Teachers, "ACT Viewpoints," Todays Education, 58:3, March, 1969.

Baker, Priscilla A., "Aides Stretch Manpower in Human Services," Occupational Outlook Quarterly, 13:4, 1969.

Biddle, Bruce J., "Methods and Concepts in Classroom Research," Review of Educational Research, 37:3, June, 1967.

Briggs, Leslie J., "Learning Variables and Educational Media," Review of Educational Research, 38:2, April, 1968.

Cutler, Marilyn H., "Teacher Aides are Worth the Trouble," Nation's Schools, 73:5, April, 1964.

Elashoff, Janet D., "Analysis of Covariance: A Delicate Instrument," American Educational Research Journal, 6:3, May, 1969.

Fischler, Abrahm S., "The Use of Team Teaching in Elementary School," School Science and Mathematics, 62:3, April, 1962.

Hagstrom, Ellis A., "The Teachers Day," The Elementary School Journal, 62:4, May, 1962.

Heinemann, F. E., "Defining Duties of Aides," Minnesota Journal of Education, 44:19, November, 1963.

Heagney, Geneviene, "New Dimensions in Primary Education," New Strategies for a New Era in Education, Maryland Association for Supervision and Curriculum Development Bulletin, 3:1, 1968.

Joyce, Bruce R., "Staff Utilization," Review of Educational Research, 37:3, June, 1967.

Logan, Edgar, "Divide the Load - Multiply the Learning," Educational Digest, 27:6, November, 1961.

Medley, Donald M. and Harold E. Mitzel, "A technique for Measuring Classroom Behavior," Journal of Educational Psychology, 49:3, April, 1958.

Meux, Milton O., "Studies of Learning in the School Setting," Review of Educational Research, 38:5, December, 1967.

National Education Association, "News and Trends", Todays Education, 58:4, April, 1969.

National Education Association, "News and Trends," Todays Education, 58:1, January, 1969.

National Education Association, "Property Taxes and the Schools," NEA Research Bulletin, 46:3, October, 1968.

National Education Association, NEA Research Bulletin, 45:2, May, 1967.

National Society for the Study of Education, Individualizing Instruction, Chicago: University of Chicago Press, 1962.

Nystrand, Raphael and Frederick Bertoloet, "Strategies for Allocating Human and Material Resources," Review of Educational Research, 37:4, October, 1967.

Phillips, Murray G., "Learning Materials and Their Implementation," Review of Educational Research, 36:3, June, 1966.

Stafford, Curt, "Teacher Time Utilization with Teacher Aides," The Journal of Educational Research, 56:3, March, 1961.

Thompson, Scott D., "The Emergency Role of the Teacher Aide," The Clearing House, 37:2, February, 1963.

Withall, John, "Research Tools: Observing and Recording Behavior," Review of Educational Research, 30:4, December, 1960.

D. ESSAYS AND ARTICLES IN COLLECTIONS

Barrett, Thomas C. and Coleman Morrison, "Lee-Clark Reading Test, 1958 Revision," Sixth Mental Measurement Yearbook, Oscar K. Buros (ed.), New Jersey, The Gryphen Press, 1965.

Buffie, Edward G., "A Historical Perspective," Bold New Venture, David W. Beggs III and Edward Buffie (eds.), Bloomington: Indiana University Press, 1967.

Chall, Jeane S. and Shirley C. Feldmann, A Study in Depth of First Grade Reading: An Analysis of the Interaction of Professed Methods, Teacher Implementation and Child Behavior, Comparative Research Project No. 2728, Washington: U.S. Office of Education, 1966.

Colombotis, John L., Sources of Professionalism, Cooperative Research Project No. 330, Ann Arbor: Department of Sociology, University of Michigan, 1962.

Dykstra, Robert, Continuation of the Coordinating Center for First Grade Reading Instruction Programs: Final Report, Project No. 6-1651, Washington: U.S. Office of Education, 1967.

Gage, Nathan L., "Theories of Teaching," Theories of Learning - Instruction, Sixty-Third Yearbook, National Society for the Study of Education, Chicago: University of Chicago Press, 1964.

Hair, Donald, "An Organizational-Methodological Perspective," Youth Education, Association for Supervision and Curriculum Development, Washington: National Education Association, 1968.

Joyce, Bruce R., The Teacher and His Staff: Man, Media and Machines, Washington: National Education Association, 1967.

Lynch, John F. and others, The Childrens Aide Program in Operation Moving Ahead, Upper Marlboro: Prince Georges County Board of Education, Maryland, 1968.

Miles, Matthew B., "The Nature of the Problem," Innovation in Education, New Haven: Teachers College, Columbia University, 1964.

Noar, Gertrude, Teacher Aides at Work, National Commission on Teacher Education and Professional Standards, Washington: National Education Association, 1967.

Robinson, H. Alan, "Metropolitan Achievement Tests," Sixth Mental Measurement Yearbook, Oscar K. Buros (ed.), New Jersey: The Gryphen Press, 1965.

Ryan, Kevin A., A Plan For A New Type of Professional Training For A New Type of Teaching Staff, Occasional Papers No. 2, National Commission on Teacher Education and Professional Standards, Washington: National Education Association, 1968.

Shane, Harold G., "The School and Individual Differences," Individualizing Instruction, The Sixty-First Yearbook of the National Society for the Study of Education, Chicago: The University of Chicago Press, 1962.

Waetjen, Walter B., "Recent Analyses of Teaching," New Strategies for a New Era in Education, Maryland Association for Supervision and Curriculum Development, Bulletin, 3:1, 1968.

E. UNPUBLISHED MATERIALS

Baltimore County Board of Education, Analysis of Questionnaires for the Study of Classroom Teacher Aide Program, mimeographed, Towson: Baltimore County Board of Education, September, 1967.

Leggatt, Timothy W., "The Use of Non-Professionals in Public Education: A Study in Innovation," Unpublished Doctoral Thesis, University of Chicago, 1966.

Minneopolis Public Schools, Teacher Aide Program: A Research Report, Special School District No. 1, mimeographed, Minneopolis: Minneopolis Public Schools, 1967.

National Commission on Teacher Education and Professional Standards and New Careers Center, Description of Paraprofessional Programs in Education, "Preliminary Report of National Conference on Paraprofessional, Career Advancement, and Pupil Learning," mimeographed, Washington, 1969.

Schmitthausler, Carl Marvin, "Analysis of Programs Using Non-professional Teacher Helpers in Public Elementary Schools," Unpublished Doctoral Thesis, University of California, Berkeley, 1966.

F. NEWSPAPERS

Baltimore County Public Schools, Community Newsletter, 10:1, Fall 1969.

National School Public Relations Association, Education U.S.A., Washington: National Education Association, September 2, 1968.

National School Public Relations Association, Education U.S.A., Washington: National Education Association, November 18, 1968.